Draft

Draft Imperial Sand Dunes Recreation Area Management Plan (RAMP)

Prepared by:

United States Department of the Interior
Bureau of Land Management
El Centro Field Office
1661 South 4th Street
El Centro, CA 92243

March 2002

ED32002005SCO166834.AA.05 RAMPcvr.psd 3/02

Draft

Draft Imperial Sand Dunes Recreation Area Management Plan (RAMP)

Prepared by

United States Department of the Interior
Bureau of Land Management

El Centro Field Office
1661 South 4th Street
El Centro, CA 92243

March 2002

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
El Centro Resource Area
1661 South 4th Street
El Centro, California 92243-4561

In reply refer to:
CA-670.24
1610(P)

Date: March 29, 2002

Dear Reader:

Enclosed for your review is the Draft Imperial Sand Dunes Recreation Area Management Plan (RAMP). This is a comprehensive and detailed management plan designed to provide a variety of sustainable off highway vehicle and other recreational activities, and to maintain or improve the conditions of the special status species and other unique natural and cultural resources while creating an environment to promote the health and safety of visitors, employees, and nearby residents. The Draft RAMP is written to address current management issues and challenges, the greatest of which is to encourage appropriate recreational use and discourage inappropriate use within the Imperial Sand Dunes Recreational Area, while respecting the freedom of visitors to enjoy their own unique recreational experiences.

The Draft RAMP has been developed within the general and regional guidance of the California Desert Conservation Area (CDCA) Plan of 1980, as amended, and once approved would be tiered to the CDCA Plan. This management plan represents the implementation of the preferred alternative that is described and analyzed in the ISDRA Draft Environmental Impact Statement (DEIS). The DEIS is available for your review under separate cover.

A preliminary step in developing the management program for the Draft RAMP involved identifying relevant issues, concerns, and opportunities. Public participation in the development of the issues, concerns and opportunities was encouraged. In developing the Draft RAMP, the issues, concerns and opportunities were used to identify the environmental conditions, services, goods, and uses that are expected from the Imperial Sand Dunes Recreational Area. Continued public participation is very important to the success of finalizing and implementing the Draft RAMP.

Public meetings will be held to obtain public input on these documents. All meetings will occur from 7:00 –10:00 p.m. The dates and locations of these meetings are as follows:

April 9, 2002	**El Centro, CA**	City Council Chambers 1275 Main Street El Centro, CA
April 11, 2002	**Long Beach, CA**	The Grand 4101 East Willow Street Long Beach , CA 90815
April 15, 2002	**Phoenix, AZ**	Phoenix College 1202 West Thomas Road Phoenix, AZ
April 18, 2002	**Brawley, CA**	Brawley City Council 225 A Street Brawley, CA 92227
April 23, 2002	**Yuma, AZ**	Yuma Civic and Convention Center 1440 W Desert Hills Drive Yuma, AZ
April 25, 2002	**San Diego, CA**	Marriott Mission Valley 8757 Rio San Diego Drive San Diego, CA 92108

In reviewing the Draft RAMP, one will notice that it consists of four chapters. Chapter one of the Draft RAMP explains the purpose and need for the RAMP. It also describes how the Draft RAMP is related to other documents. Chapter one provides a discussion of the ISDRA, including a detailed description of the area, resources and current status. This background information is the foundation of the Draft RAMP. This information will be built upon in future chapters.

The second chapter of the Draft RAMP provides a discussion of the issues, concerns and opportunities that were identified during the public scooping process.

The third chapter presents management goals and management actions for the ISDRA. Some of the goals and actions are for the entire ISDRA. They are referred to as 'area wide goals' and 'area wide management actions'. Other goals and actions are for only a portion of the ISDRA. Chapter 3 discusses the nine separate geographic areas that BLM proposes to use to assist in the management of the ISDRA. These areas are called management areas in the Draft Ramp. Using management areas will allow BLM to manage different geographic areas of the ISDRA to meet different goals, such as one area could be wilderness, another area could be rural camping and another area developed camping. The management areas are: Mammoth Management Area, North Algodones Dunes Wilderness Management Area, Gecko Management Area, Glamis Management Area, Adaptive Management Area, Olgilby Management Area, Dune buggy Flats

Management Area, Buttercup Management Area, and the Buffer Zone Management Area.

Chapter 4 contains a table of the management actions described in Chapter 3. The table of management actions includes a schedule for the actions, the anticipated source of funding and the estimated cost of the action.

Again, BLM greatly appreciates the public's review of the Draft RAMP and DEIS. BLM welcomes both positive and negative comments. BLM will use the public review and comments to improve the Draft EIS and Draft RAMP and develop a final EIS and final RAMP. The public comment period for the Draft RAMP and DEIS is 90 days. It begins March 29 and ends June 28. Thank you for your time and interest in the ISDRA.

Sincerely,

Greg Thomsen

Greg Thomsen
Field Manager

Imperial Sand Dunes

Recreation Area Management Plan

DRAFT: MARCH 2002

United States Department of the Interior
Bureau of Land Management
California Desert District
El Centro Field Office
1661 South Fourth Street
El Centro, California 92243

Abstract

The Draft Recreation Area Management Plan (RAMP) has been developed within the general and regional guidance of the California Desert Conservation Area (CDCA) Plan of 1980, as amended, and once approved would be tiered to the CDCA Plan.

This plan is considered a major federal action that could significantly affect the quality of the human environment. A detailed Draft Environmental Impact Statement was prepared in accordance with the regulations at Title 40 CFR Part 1500. These regulations implement the National Environmental Policy Act of 1969. This Draft RAMP represents the implementation of the preferred alternative as identified in the Draft Environmental Impact Statement for the Draft Imperial Sand Dunes Recreation Area.

If any particular provision of this plan, or application thereof, to any circumstance or person, is found to be invalid, the remainder of this plan and the application of that provision to other persons or circumstances shall not be affected.

Table Of Contents

List Of Maps

Executive Summary

The Imperial Sand Dunes Recreation Area (ISDRA) is the most popular Off Highway Vehicle (OHV) area in the southwest United States. It encompasses the most intensively visited recreational area in the California Desert Conservation Area (CDCA). It provides a unique, world-class recreation opportunity. The primary recreational use is camping and the use of Off Highway Vehicles OHVs, principally dune buggies and all terrain vehicles. Other uses include photography, hiking, backpacking, nature studies, walking, hunting, rock collecting, right of way use for utility lines, canals and roads, filming, conservation activities and horseback riding.

To ensure that world class recreational opportunities are continuously available at the ISDRA, a recreation mitigation process is defined in the Draft RAMP. This process would replace areas that are closed to camping because they are sensitive areas (such as woodland microphyl) by developing new camping areas in less sensitive locations such as Gecko Road. Osborne Overlook would be closed to camping and a ranger station to support increased law enforcement staging and radio communications and a day use area would be constructed there. A Ranger station would also be established in the Buttercup Management Area. New phone locations, road grading, dust control, toilet facilities, and trash services would be prioritized and scheduled for improvement. A campsite reservation system would be established as a pilot project in the Road Runner Camp Ground. The results of the program would be used in developing additional reservation systems along Gecko Road. The Draft RAMP would determine visitor supply to maintain the integrity of resources and recreation opportunities, through concentration of camping areas and distribution of use throughout the visitation season and establishment of biological and recreational triggers that activate alternative management actions to assist in meeting these goals.

The Draft RAMP would continue to emphasize a co-operative approach to law enforcement. Local, State and Federal law enforcement Officers, working together, would provide increased law enforcement. In addition, several management techniques would be implemented to increase law and order. These techniques include establishing curfews in areas of historic lawlessness and limiting alcohol use to established camp areas. It is anticipated that these actions would restore a safe family atmosphere at the Imperial Sand Dunes Recreation Area.

The 2002 Draft RAMP would manage the ISDRA based on 9 individual management areas. The nine individual management units are:

- Mammoth Wash Management Area
- North Algodones Dunes Wilderness Management Area
- Gecko Management Area
- Glamis Management Area
- Adaptive Management Area
- Ogilby Management

- Dune buggy Flats Management
- Buttercup Management Area
- Buffer Zone Management Area

Each management area would offer specific recreational opportunities based on the Recreation Opportunity Spectrum (ROS) classification system. The ROS system determines the visitor supply and types of available services based on a desired recreational opportunity. Semi-primitive non-motorized opportunities are available in the North Algodones Dunes Management Area. Rural opportunities are available in both the Gecko and Buttercup Management Areas. Roaded natural opportunities are available in the Glamis, Ogilby and Dune buggy Flats Management Areas. Semi-primitive motorized opportunities area available in the Mammoth Wash Management Area. The recreational opportunity classification for each management area would determine the types of recreation, level of development and types of services that would be available in that management area.

One of the major challenges in developing the Draft RAMP is integrating sustainable habitat and recreational use for the Adaptive Management Area. A permitting process would be established to allow limited OHV use of this management area, while conserving the habitat and species in the area. An intensive resource and recreation monitoring and analysis program would be implemented in conjunction with the permitting process. There would be continued adjustments to the allowed level of use for the area based on the monitoring and analysis. During the first year of the permitting process, no more than 525 vehicles would be allowed into the Adaptive Management Area by permit on any day. The first year would be designed to obtain information on visitor supply and biological needs and future permit numbers would be adjusted accordingly.

A one-mile buffer perimeter around the active recreation area would be established within the planning area, but outside the ISDRA. This area is referred to as the Buffer Zone Management Area. The purpose of this area is to reduce impacts on the property surrounding the ISDRA from activities that are directly a result of the ISDRA. No camping would be allowed in the Buffer Zone Management Area and designated routes would be identified in some areas.

The ISDRA will be managed to achieve the following guiding goals:

- Goal 1 - Provide a variety of sustainable OHV and other recreational activities

- Goal 2 - Maintain or improve conditions of the special status species and other unique natural and cultural resources.

- Goal 3 - Create an environment to promote the health and safety of visitors, employees, and nearby residents by working with local, state, and federal agencies and interest groups.

Additional goals were established for each management area. Management objectives and management actions were defined to support achieving the goals. Please see chapter III of the Draft RAMP for more details on these goals, objectives and actions.

The management of the ISDRA would be a multi-approach. It would increase the effectiveness of law enforcement, provide sustainable recreational opportunities, and conserve natural and cultural resources. The Draft RAMP implements the preferred alternative in the draft Environmental Impact Statement.

Chapter I

Introduction

This Draft Recreation Area Management Plan (RAMP) provides direction and guidance to manage the land and resources of the Imperial Sand Dunes Recreation Area (ISDRA). It was written after considering the information in the accompanying Draft Environmental Impact Statement (EIS) and will be considered in writing the Record of Decision. The Draft RAMP implements the Preferred Alternative in the EIS. The Record of Decision will explain the consideration and rationale used by the State Director in making his decision to select and implement the preferred alternative.

The ISDRA, located in eastern Imperial County in Southern California, offers outstanding opportunities for OHV recreation within the Bureau of Land Management's (BLM) California Desert Conservation Area. The approximately 208,000-acre ISDRA contains the largest mass of sand dunes in California, covering an area more than 40 miles long and averaging 5 miles in width. Figure 1-1 illustrates the regional location of the ISDRA.

The ISDRA is considered a world-class OHV area and it represents one of the most popular OHV areas in the western United States. It is a well-known area to local residents and the thousands who visit each year from the southwestern United States and beyond. The ISDRA is the most heavily and intensively used OHV recreation area in the California Desert District with over 3 million OHV visitor use days per year (estimated by BLM 2001). In addition, the ISDRA is recognized for its frequent use as a backdrop for commercials and movies because of its unique beauty and landscape. The ISDRA is also recognized for providing unique habitat for several endemic and sensitive plant, insect, and animal species and habitats.

Currently, as a result of a negotiated settlement agreement between the BLM and a coalition of environmental and off-road groups, several areas of the ISDRA are temporarily closed in order to protect various species. This Draft RAMP is written using the "current condition" as the management of the ISDRA prior to the temporary closure.

The overwhelming popularity and regional importance of the ISDRA to visitors, recreational enthusiasts, and others require careful management to protect its recreational, natural, and cultural resources. As the designated steward of the ISDRA, the BLM is charged with the responsibility to oversee and manage this ecologically complex and beautiful public treasure. The Draft RAMP was developed as a tool for long-range planning and management oversight of these important resources. The Draft RAMP emphasizes recreational use while providing for natural and cultural resource conservation and enhancement.

The first ISDRA-specific RAMP was developed in 1972. The initial RAMP was revised in 1987. The 2002 RAMP will replace the 1987 RAMP.

As with previous versions, the current Draft RAMP has been developed with the participation and assistance of interested members of the public. The BLM will continue to work closely with the public to provide quality recreational opportunities, comply with regulations, respond to emergencies, resolve conflicts, and protect the resources within the ISDRA.

The 2002 Draft RAMP employs a unique and innovative approach to the management of the ISDRA. This Draft RAMP proposes setting up various geographical management areas within the ISDRA. Each management area would be managed consistent with the specific goals and objectives for that management area. The goals shape the type of recreation and conservation opportunities that are available for the management area. Corrective actions or management actions are provided for each management area to assist in reaching the goals.

Purpose of the Plan

The Draft RAMP guides all resource management activities and establishes management actions for the ISDRA. The purpose of the Draft RAMP is to provide a comprehensive and detailed management plan designed to provide a variety of sustainable OHV and other recreational activities, and to maintain or improve the conditions of the special status species and other unique natural and cultural resources while creating an environment to promote the health and safety of visitors, employees, and nearby residents.

The Draft RAMP establishes:

- Multiple-use goals and ecosystem management objectives;
- Management actions which fulfill the requirements of the Federal Land Policy and Management Act of 1976;
- Management direction and actions applying to future activities in specific management areas; and
- Monitoring and evaluation requirements.

This Draft RAMP embodies the provisions of Federal Land Policy and Management Act, the implementing regulations, and other guiding documents. It is developed in accordance with the CDCA Plan and would amend portions of the CDCA Plan pertaining to recreation management in the ISDRA. It revises and replaces the 1987 RAMP.

The Purpose of the Draft RAMP is to:

- Specify what levels of visitor use can be provided for motorized vehicle use in the ISDRA while maintaining the habitat requirements for special status species, conserving cultural resources, providing reasonable consideration for other important natural resources and providing for the health and safety of visitors, nearby residents, employees and other service providers in the ISDRA. Institute measures to achieve specified visitor use levels. Establish criteria for modifying those measures or instituting additional measures if needed in the future based on monitoring of visitor use and the conditions and trends of special status species, cultural resources and important natural resources.

- Identify the type and level of visitor services, including facilities, needed to support desired visitor use. For services to be provided by BLM, the Draft RAMP would identify cost for these services. The Draft RAMP would establish a fee system such that the appropriate level of visitor services can be provided in an efficient, cost-effective manner.

- Identify needed adjustments to land tenure. It would identify management guidelines for use of the existing right-of-way corridor and areas with right-of-way agreements. It would also confirm decisions from the CDCA Plan and current RAMP that are still valid and will not be revised by the Draft RAMP.

- Guide the ISDRA beginning in October 2002. It will normally be revised every ten years, but may continue to be used for up to fifteen years. It may be amended or revised at any time if the BLM Field Manager determines that conditions in the ISDRA have changed beyond those anticipated by this Plan, or if monitoring or project-level environmental analysis indicate a need for a change in management direction.

- Implement the EIS Preferred Alternative. It is the alternative the Field Manager has determined would most benefit the public. Careful consideration was given to coordinating and balancing various conflicting resource uses to arrive at a sustainable mix.

- Establish priorities. Management area allocations, actions, monitoring and evaluation requirements constitute a statement of BLM's intended direction. However, projected outputs, services and rates of implementation are contingent upon obtaining funding, including grants, agreements and the annual budgeting process.

Need for the Plan

The ISDRA offers outstanding opportunities for OHV and other recreation in the California Desert District. In order to fulfill its management obligations under federal regulations, the BLM must carefully manage OHV use, so that the conditions of the special status species, and other unique natural and cultural resources are maintained or

improved. The type and level of OHV use also must be carefully managed to create an environment that promotes the health and safety of visitors, employees, and nearby residents.

Since the previous plan was written in 1987, several of the projects identified have been implemented. Of the projects that were not implemented, some are no longer feasible. Therefore, it is critical to revisit some of the past decisions and determine whether or not new courses should be charted.

Since the 1987 RAMP, several regulatory changes have taken place that relate to the ISDRA. The U.S. Fish and Wildlife Service listed the Peirson's milk-vetch as a Federally threatened plant. The flat-tailed horned lizard has been proposed as Federally threatened by the U.S. Fish and Wildlife Service. Public Law 103-433 designated the North Algodones Dunes Wilderness in 1994. Public Law 103-433 released Wilderness Study Area 362 from further studies concerning its suitability for wilderness designation. Analyzing this new information may lead to different management decisions in the future.

The proximity of the Imperial Sand Dunes Recreation Area to private land and the wilderness area requires that the BLM carefully manage the recreation, natural, and cultural resources and corresponding resource values (such as "scenic values") within the planning area to reduce potential impacts to these areas.

Southern California's continued population growth in the urban and non-urban areas and shifting demographic patterns have increased the demand for outdoor recreation at the ISDRA and nearby areas. Related to the increased demand, the problem of trespass in the North Algodones Dunes Wilderness and private lands (both within and adjacent to the Area) has traditionally created conflicts between OHV enthusiasts, landowners and concerned members of the public. It continues to be a management challenge to encourage appropriate recreational use, discourage inappropriate use, while respecting the freedom of visitors to enjoy the ISDRA.

In addition to discussing the positive recreational uses of the ISDRA, this plan discusses a variety of issues, their proposed solutions and opportunities for creative improvement.

Legislative History And Plan Relationship to Other Documents

This section describes the relationship between the draft RAMP and other plans, policies, and programs.

California Desert Conservation Area Plan (1980): The CDCA Plan provides overall regional guidance for management of the public lands in CDCA. The CDCA plan establishes four multiple-use classes, multiple-use class guidelines, and plan elements for specific resources or activities such as motorized-vehicle access, recreation, and

vegetation. The Draft RAMP would change certain parts of the CDCA Plan. Some of these changes include establishing new or modified areas as open, limited, or closed to OHV use. Such changes require an amendment to the CDCA Plan in accordance with BLM planning regulations, Part 43, Code of Federal Regulations, Subpart 1610.3-2.

Imperial Sand Dunes RAMP (1987): The 1987 management plan for the ISD is outdated and will be fully replaced by the new RAMP.

Northern And Eastern Colorado Desert Coordinated Management Plan: The NECO planning area is adjacent to the ISDRA but does not overlap the ISDRA, except in the eastern side of the Buffer Zone Management Area. BLM will coordinate management decisions so that the management of the ISDRA areas that are adjacent or adjoining the NECO areas is consistent, as appropriate.

California Desert Protection Act (Public Law 103-433): The draft RAMP is consistent with the 1994 California Desert Protection Act (CDPA).

Prior to passage of the CDPA, BLM studied the North Algodones and South Algodones wilderness study portions of the ISD for possible wilderness designation under section 603 of the Federal Land Policy and Management Act. On January 3, 1989 Senator Alan Cranston proposed these Wilderness Study Areas, along with 69 other areas of the CDCA, to be designated as wilderness in Senate Bill 11 (S- 11). The bill did not pass and was reintroduced by Senator Feinstein in 1993 as Senate Bill 21. Senator Feinstein, in a February 23, 1994 correspondence to her Senate colleagues asking for their support of the Bill, stated that she wanted to "... drop the entire 61,630 acre South Algodones Dunes from the bill to allow vehicle use." On October 31, 1994, the CDPA was signed into law. The Act designated as wilderness the 32,240 acre North Algodones Dunes to be managed by BLM as a part of the National Wilderness Preservation System. No wilderness was designated for the South Algodones in the Act. Congress also indicated in the CDPA that the South Algodones Dunes Wilderness Study Area had been adequately studied for wilderness designation pursuant to Section 603 of Federal Land Policy and Management Act, and would be released from Wilderness Study Area status. Since conditions relating to the wilderness values of the South Algodones Dunes have not changed since the 1994 Act, BLM will not review the area under Section 201 or 202 of Federal Land Policy and Management Act.

Wilderness Implementation Strategy: This August 31, 1999, strategy will continue to be used with the Draft RAMP to manage the North Algodones Wilderness Area of the ISDRA.

Desert Tortoise Recovery Plan, U. S. Fish and Wildlife Service: The ISDRA is within the range of the desert tortoise but is not within critical habitat or any existing or proposed reserve area.

National Management Strategy for Motorized Off-Highway Vehicle Use on Public Lands (January 2001): The Draft RAMP is consistent with this document and

incorporates numerous goals and strategies identified in this plan.

State Implementation Plan For PM –10 in the Imperial Valley, Executive Summary, Final (1993): The Draft RAMP is consistent with the State of California Air Quality Implementation Plan.

County of Imperial General Plan (1996): This plan seeks to direct growth, particularly urban development, to suitable areas in Imperial County. The Draft RAMP is consistent with this Plan.

California Desert District Business Plan Recreation Fee Demonstration Project: The Draft RAMP is consistent with this plan. This plan will be utilized in the development of fees.

Algodones Dunes Habitat Management Plan (1987): The Draft RAMP would amend this document and take precedence in management decisions.

Wildlife Habitat Protection Program: This program would be supplemented by the habitat monitoring program in the Draft RAMP.

Imperial County Emergency Medical Services ALS/BLS Treatment Protocols, as Amended: The BLM provides basic life support in the ISDRA following this plan. The Draft RAMP is consistent with this plan.

Interpretive Plan for the El Centro Resource Area (1991): This document provides a framework for interpretative services and development on public lands in the El Centro Resource Area. The ISDRA interpretative services would be developed in accordance with this plan.

Law Enforcement Special Evaluation: Law Enforcement in the California Desert (2000): The draft RAMP is consistent with this document.

El Centro Law Enforcement Plan: This plan establishes general guidelines for law enforcement for the El Centro Field Office. The Draft RAMP is consistent with this Plan.

Mineral Resources of the North Algodones Dunes Wilderness Study Area (1984): The Draft RAMP is consistent with this publication.

Plank Road Areas of Critical Environmental Concern Management Plan (1985): The Draft RAMP is consistent with this publication.

Flat-Tailed Horned Lizard Range-wide Management Strategy (1997): Appropriate strategies from this publication have been incorporated into the Draft RAMP.

Volunteer Opportunities with the Bureau of Land Management in the El Centro

Resource Area: The Draft RAMP is consistent with and incorporates information provided by this publication.

ISDRA OVERVIEW

LOCATION AND SIZE

The Imperial Sand Dunes are the largest mass of sand dunes in California. They are located on the eastern edge of Imperial County. The dunes are more than 40 miles long and have an average width of five miles. The Coachella Canal is located near the western boundary of the dunes. The Coachella Canal delivers Colorado River water to the fertile agricultural valley to the north. A major east-west route of the Union Pacific railroad skirts the eastern edge of the ISDRA.

Generally, the west boundary of the ISDRA follows the abandoned Old Coachella Canal, while the east boundary follows the Union Pacific Railroad. Exceptions to these boundaries include small areas of adjacent lands. These lands were included in the ISDRA boundary since this property already incurred heavy recreational use from ISDRA enthusiasts.

The dune system is currently divided into 3 areas. The northern most area is known as Mammoth Wash. South of Mammoth Wash is the North Algodones Dunes Wilderness established by the 1994 CDPA. This area is closed to mechanized use and access is by hiking and horseback. The largest and most heavily used area begins at Highway 78 and continues south just past Interstate 8 to the Mexican Border. (Map 1.)

ACCESS

Two major east-west highways traverse the dune system. The areas near the highways are the locations where most of the concentrated use has traditionally occurred. To the north, State Highway 78 crosses at the small settlement of Glamis. Highway 78 connects Brawley (29 miles west of Glamis) with Blythe (60 miles northeast of Glamis). At the southern end of the ISDRA, Interstate 8 crosses the dunes at Buttercup Valley. Interstate 8 provides access from El Centro, California (40 miles west of Buttercup) and Yuma, Arizona (20 miles east).

These highways also provide access from the major urban centers of Los Angeles, San Diego, Phoenix, and Tucson. All are within a few hours drive of the ISDRA.

CLIMATE

The ISDRA is located in a desert region of long, hot summers, mild winters, low rainfall, low relative humidity, and a high percentage of sunny days. Summer daytime temperatures routinely exceed 105 degrees Fahrenheit. Annual precipitation fluctuates widely but averages just over two inches. Winter daytime highs are in the 60-70 degree

Fahrenheit range from December through March. Winter winds approach from the northwest. Summer winds are variable, but often blow from the southeast.

SOCIOECONOMICS

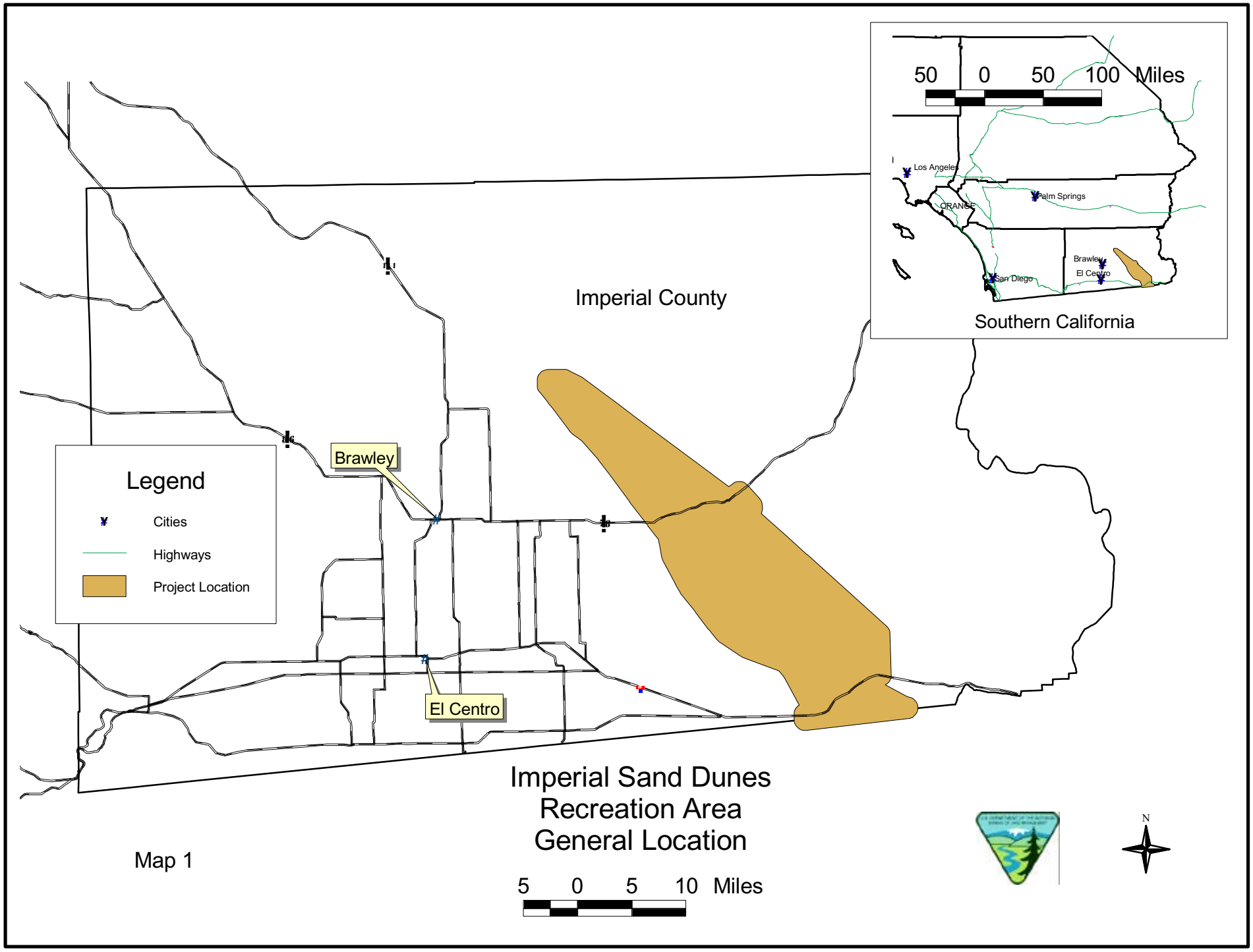
The ISDRA economic study area includes six counties in southern California (Imperial, Riverside, San Bernardino, Los Angeles, Orange, San Diego) and three counties in Arizona (Yuma, Pima, Maricopa). The ISDRA draws recreation visitors from major population centers including San Diego and Los Angeles in California, as and Phoenix and Tucson in Arizona. This socioeconomic discussion includes population data from the nine counties from which the ISDRA draws most of its visitors. (See Map 2.)

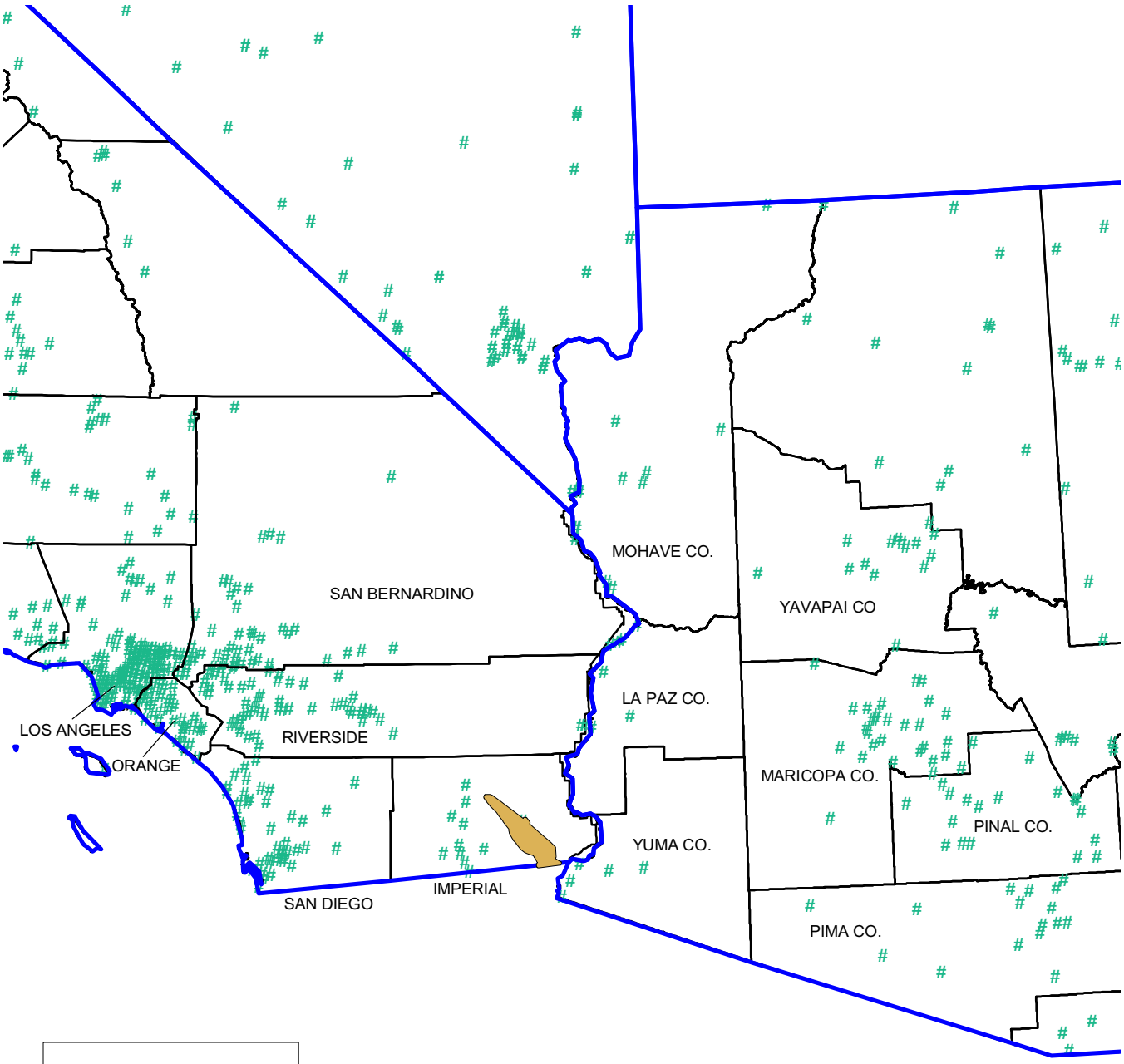
Since the Imperial Sand Dunes Recreation Area is a destination area for recreational activities, especially OHV enthusiasts, including the nine counties within several hours driving time to the ISDRA is appropriate for the social economic analysis. Although the market is geographically extensive, the majority of the socioeconomic impacts associated with trips to the ISDRA stay within Imperial County where the dunes are located. Additional employment and expenditures affects Yuma County, Arizona. Expenditures from out of town visitors represent injections of new dollars into the local economy.

Examples of expenditures in these two counties relate to the purchase of supplies such as fuel, arts, food, camping supplies, and medication. Most recreational enthusiasts coming to the dunes purchase more expensive items such as recreational vehicles and OHVs, beyond Imperial and Yuma counties. In addition to the benefits of employment and income opportunities, residents of Imperial and Yuma counties also benefit personally from the proximity to recreation opportunities at ISDRA.

In 2000, the nine counties had an estimated population of 22.6 million, up from 19.3 million in 1990. This represents an increase of over 3.2 million people (17 percent) in a decade. Table 1 provides a snapshot of the current population in the nine counties as well as 20-year projections for each county. All counties except Los Angeles showed double-digit increases in population between 1990 and 2000. Imperial County's 30.2 percent increase was second only to Riverside County's 32.0 percent increase among the six California counties. Two of the Arizona counties, Maricopa and Yuma, experienced growth rates of 44.8% and 49.7%, respectively.

The 20-year projections suggest continued growth for the nine counties. Triple digit growth is projected for Riverside, Maricopa and Imperial counties. In addition to the projected growth within Imperial County, increased population in the other counties of the study area will move population centers closer to Imperial County.


50 0 50 100 Miles
Los Angeles
Palm Springs
ORANGE
Brawley
El Centro
San Diego
Southern California
Imperial County
Brawley
El Centro
Legend
Cities
Highways
Project Location
Imperial Sand Dunes
Recreation Area
General Location
5 0 5 10 Miles
N
Map 1



Legend

- Project Location
- States
- Counties
- Cities

Socio-Economics Area

Map 2

50 0 50 Miles

N

Table 1: Population Estimates for the Nine Counties in the Affected Environment, 1990 – 2020.

	1990	2000	2010	2020	% Increase 1990-2000	% Increase 2000 - 2020
California						
Imperial	109,303	142,361	217,500	294,200	30%	169%
Los Angeles	8,863,164	9,519,338	10,605,200	11,584,800	7.4%	31%
Orange	2,410,556	2,846,289	3,266,700	3,541,700	18%	47%
Riverside	1,170,413	1,545,387	2,159,700	2,817,600	32%	141%
San Bernardino	1,418,380	1,709,434	2,231,600	2,800,900	20%	97%
San Diego	2,498,016	2,813,833	3,288,400	3,863,500	13%	55%
Arizona						
Maricopa	2,122,101	3,072,149	3,709,566	4,516,090	45%	113%
Pima	666,880	843,746	1,031,623	1,206,244	26%	81%
Yuma	106,895	160,026	171,689	209,861	50%	80%
Study Area Total	19,365,708	22,652,563	26,781,978	34,834,895	17%	80%

TOPOGRAPHY

The dune system is situated on a relatively flat plain. The plain has an elevation of approximately 50 feet above sea level. On the west, the plain is called East Mesa (because it is east of Imperial Valley). On the east, the plain is called Pilot Knob Mesa.

The dunes reach heights of 300 feet above the plain, and include classic examples of several different types of dune morphology. The sand dunes are thought to have originated from the beach sands of ancient Lake Cahuilla, a water body created by episodic diversions of the Colorado River into the Imperial Valley instead of the Gulf of California. The Imperial Dunes have formed primarily as a result of opposing seasonal winds. Winter winds come from the northwest, but often reverse to the southeast in summer. The stronger winter winds are slowly pushing the dune system southeastward.

The east and west sides of the dunes system differ substantially in character. West side sands are composed of material that is generally heavier and coarser than the lighter, finer sands carried further east in the prevailing winds. The coarse sands form the largest, tallest dunes, which are located in the western two-thirds of the dune system. These constitute the “primary dunes.” East of the primary dunes are the “secondary dunes”. These dunes are smaller dunes composed of finer sands and having more vegetation cover.

SOILS

The Imperial Sand Dunes are comprised of a variety of dune types (e.g. draas, linear, parabolic, barchan, zibars). These dunes are separated occasionally by inter-dune areas, where relatively little sand accumulates into dune formations. The dune system lies on alluvial fan material emanating from the Cargo Muchacho and Chocolate Mountains. Some dunes reach 300 feet in height.

Dune System

The dunes are composed of sand that is 60-70% quartz, 30-40% feldspar with very minor amounts of biotite, magnetite, garnet and epidote. A large percentage of the grains are coated with ferric oxide, resulting in a pale orange cast to the sand. Approximately 60 percent of the grains are sub-rounded to sub-angular. The remainder of the grains is either rounded or angular. Grain size decreases from west to east across the dunes (while sorting increases), indicating the source is from the west (i.e., a decrease in size, and increase in sorting, occurs as sand moves away from the source). The source of the sand is thought to be ancient Lake Cahuilla shoreline deposits. Much of this sand was deposited by the Colorado River, and reworked by the ancient lake.

The potential for wind erosion is low in dune deposits, except during high wind events (winds that are strong enough to entrain sand size particles). Most sand movement occurs during high winds, which usually are not long lasting events. Research (Kocurek and Havholm, 1991) shows that the large dunes (draas) migrate to the southeast at a net rate of 6 to 25 cm/yr; while, superimposed dune structures migrate northeast at a net rate of 10 to 50 cm/yr. However, the resultant transport direction is to the southeast (this is the effective transport direction of sand, given prevailing wind direction during various seasons). So, while there are components of sand movement in various directions during seasonal prevailing winds, the overall transport direction is to the southeast. While dune deposits are constantly reshaped during wind, sand particles only move a short distance (with the exception of during strong wind events).

The potential for water erosion is slight. Because compaction of sand grains is low, voids occur between grains. These voids allow the water to percolate through the soil. This type of soil has a high permeability. Surface runoff is slow. Precipitation mostly moves down through the grains, not laterally. Available water capacity is low. Only during rare flood events and creation of turbulent waters, would significant water erosion occur. The average annual rainfall for the area is approximately two inches, while evaporation exceeds 106 inches annually (Mesquite Mine Closure and Reclamation, 2001, pg. B-12).

The United States Department of Agriculture soil survey for Imperial County (1981) classifies dune sand as “Rositas fine sand”. Typically this Rositas soil is reddish-yellow fine sand to a depth of 60 inches. In some areas, the soil is loamy fine sand, or the soil colors are less bright. This soil is somewhat excessively drained. The effective rooting

depth is 60 inches or more. This survey states the soil is used for desert recreation, with little potential for farming, home sites and urban areas.

Inter-dune Areas

The inter-dune areas are deflated to the alluvial surface, with occasional small-scale sand dune features (e.g., barchan dunes, linear dunes, sand ripples). According to the USDA report (1981; mentioned above), the soil type varies from reddish-yellow fine sand (i.e., "Rositas" fine sand) to brownish-loamy fine sand (i.e., "Rositas" loamy fine sand). The Rositas fine sand extends to a depth of approximately 60 inches, and is somewhat excessively drained. Permeability is rapid, and available water capacity is low. Surface runoff is slow, and the hazard of erosion is slight. The hazard of soil blowing is high. The effective rooting depth is 60 inches or more. This soil is used for desert recreation and wildlife habitat. This soil has a potential for farming, and is well suited to home-sites and urban areas.

The Rositas loamy fine sand extends to a depth of typically 4 inches, and is somewhat excessively drained. A pink to pale brown fine sand to a depth of 60 inches underlies the Rositas loamy fine sand. Up to 2 percent of this sand is soft masses and lime concretions. Permeability is rapid, and available water capacity is low. Surface runoff is slow, and the hazard of erosion is slight. There is a high hazard of soil blowing. The effective rooting depth is 60 inches or more. The soil is used for desert recreation, with a potential for farming, and is well suited for home-sites and urban areas.

Local compaction can be high due to OHV use. BLM field observations have found, local areas of the inter-dune system are less permeable due to more clay content. Standing water and mud cracks were observed.

AIR QUALITY

The ISDRA has intermittently poor air quality. This has resulted in the area being classified as being in non-attainment for ozone and PM_{10} under both federal and state rules. The primary sources of the ozone and PM_{10} pollution is drift from the Mexicali Valley and agricultural activities including burning, tilling, harvesting, chemical use, and vehicle and maintenance activities along the canals. The extent to which ISDRA adds to this pollution on major holiday weekends in the fall and winter has not been determined. During these times, OHV and camping activities add an unknown quantity of airborne dust particles and hydrocarbon emissions.

LAND OWNERSHIP

A mixed ownership pattern of private, state, county, military and public land exists in the planning area. (See Map 3.) Within the ISDRA, approximately 208, 284 acres are managed by BLM; 16, 085 acres are privately owned; 1,758 acres are owned by the United States military; and 906 acres are owned by the State of California Land uses vary widely and include private residential, private commercial, military training,

management of sensitive natural resources, law enforcement facilities, educational centers, wilderness, OHV recreation, other recreation, commercial vendors and commercial filming. The Draft RAMP would provide management direction only for the BLM managed land, although consideration would be given to management options that may reduce negative impacts from the ISDRA on land owned by other entities.

BIOLOGICAL RESOURCES

The biological resources in the Planning Area include dune habitats that support a variety of desert plants, reptile and insect communities, including special-status and endemic species found only in the Algodones Dunes. The primary habitat types associated with the dune system are: creosote bush scrub, psammophytic scrub, active dune, microphyll woodland, Sonoran desert scrub, and canal-influenced vegetation.

Creosote bush scrub generally occurs on the edges of the dune system and occasionally in the central portion. Creosote bush scrub is the most common vegetation community in the Colorado Desert and typically occurs in well-drained secondary soils of slopes, fans, and valleys. Characteristic species for this community include creosote bush, brittlebush, and burrobush. The creosote bush habitat in the ISDRA generally consists of widely spaced shrubs, usually interspersed with bare ground. The western flank consists of almost pure stands of creosote bush.

Psammophytic ("sand loving") scrub occurs in the interior portion of the sand dune system, both in the active sand dunes and partially stabilized areas. This type of vegetation occurs most frequently between active dunes in areas that form depressions. As the dunes shift from year to year, the depressions generally shift as well. The vegetation in this area is adapted to relatively high sand mobility, deep water percolation and is capable of rapid growth. The ISDRA contains six special-status plants of this type, including the Peirson’s milk-vetch.

The area on the eastern side of the dune system is a large alluvial fan draining the Chocolate and Cargo Muchacho Mountains. The alluvial fan is dissected into numerous washes and plains. The microphyll woodland habitat is found along these dry-wash channels and around the cul-de-sac sinks at the end of the washes. Trees associated with this habitat are palo verde, ironwood, smoke tree, and, to a lesser degree, honey mesquite and desert willow. Microphyll woodland habitat supports the highest diversity of wildlife in the ISDRA.

Sonoran Desert Scrub occurs on the extreme eastern edge in the planning area as a transition zone between creosote bush scrub and microphyll woodland. This habitat includes desert dry wash woodland, as well as alluvial fans that support ocotillo, brittlebush, and cacti.

The Coachella Canal and the All-American Canal support some non-native, water-dependent vegetation, which is periodically eradicated.

Map 3

Land Ownership

5 0 5 10 Miles

N

MANAGEMENT

Management of the ISDRA currently is guided by the specific management actions outlined in the 1987 RAMP and in the CDCA Plan of 1980. These actions provide resource management direction for the ISDRA through land classification and OHV-use classifications.

LAW ENFORCEMENT

Presently throughout the season (October through May), the ISDRA is faced with numerous law enforcement issues such as; driving under the influence of drugs or alcohol, assaults on the public and employees, under-age alcohol and drug use, traffic violations such as speeding and double riding, fee compliance violations, and resource violations (littering, natural feature destruction, dumping of hazardous materials, dumping of waste, etc.). There are six major weekends that attract extremely large crowds at the ISDRA. These weekends are Halloween, Thanksgiving, New Year's, Martin Luther King Day, President's day and Easter. Law enforcement issues increase during the holiday weekends. The types of behaviors exhibited are more violent than on routine weekends.

Large quantities of alcohol are consumed throughout the ISDRA but certain areas seem to have a greater amount of alcohol consumption. These areas are Competition Hills in both the north and south dunes, the "drags" in both the north and south dunes and Test Hill in the south dunes. Numerous people, mostly young adults and teenagers visit these areas at night when the "parties" are occurring simply to drink and participate in what is commonly referred to as a large drunken party. It is not uncommon to have beer bottles or cans thrown at the law enforcement officers who are working in the area from individuals in the crowd. Other individuals have been known to encourage this outrageous behavior in order to film the event or simply to watch the unacceptable behavior.

Until recently law enforcement in the ISDRA was provided primarily by the BLM. The El Centro office has authorization to employ 9 patrol rangers, 2 supervisory rangers, and 1 chief ranger. Currently 8 of those positions are filled, two of which are assigned to the dunes on a regular basis. One ranger lives on site at the Cahuilla Ranger station and one is assigned to the southern dunes. The remaining rangers regularly patrol the lands managed by BLM that are outside the dunes. Most of the remaining rangers are assigned to the dunes during peak use times such as holidays. However, even with the additional rangers assigned to the dunes, the level of law enforcement available is insufficient to ensure a safe and secure environment on holiday weekends.

The BLM ranger's primary responsibility is to protect federal land resources. However, several years ago when the ISDRA began experiencing an increased number of individuals who visit the sand dunes in order to enjoy the "party" atmosphere that had developed, the law enforcement officer's role changed. Due to this new clientele, the

ranger's focus changed from OHV related safety incidents and resource violations to more serious crimes.

Due to the ISDRA's location near the U.S. Mexican border, law enforcement activities are conducted by a number of agencies at the federal, state, county and local levels. Although each agency has specific missions and authorities, an overlap of jurisdictions and responsibilities is common. Three separate United States Border Patrol offices patrol the ISDRA. The Yuma Sector of the Border patrol covers the southeast portion of the Dunes. The El Centro and Calexico sectors patrol the remaining sections.

Growing problems surrounding some of the ISDRA's clientele have demonstrated the need to establish better partnerships with state and local agencies. In an effort to improve law enforcement at the dunes, a Memorandum of Understanding was established with the Imperial County Sheriff's Office (ICSO). This Memorandum of Understanding formed a coalition of local law enforcement agencies to help provide law enforcement as the dunes. In addition, innovative approaches to law enforcement are being implemented. For example, an incident command system has been established to better coordinate the operations involving multiple agencies. It is necessary to increase the number of law enforcement officers in the ISDRA, on an interim basis, during the holiday weekends and non-holiday weekends to reduce the level of unacceptable behaviors.

On the holiday weekends, additional law enforcement resources from other federal, state and local government agencies are utilized. Approximately 15-30 additional federal law enforcement rangers and agents are detailed to the ISDRA on these major weekends. In addition, up to 35 local law enforcement officers are available on holiday weekends. The actual number of law enforcement officers varies from holiday to holiday with changing participants. On some holiday weekends, up to 150 law enforcement officers are available. In addition, a volunteer dunes patrol contributes to the efforts of law enforcement activities.

It is anticipated that the use of additional, non-BLM, law enforcement officers for behavior modification would allow BLM law enforcement officers to focus on their primary mission of safety, resource and land protection. Resource protection has become a greater priority at the ISDRA. Increased law enforcement presence is necessary on a regular basis in order to perform normal patrols concentrating on littering, dumping and vegetation destruction. Management of the wilderness area and conservation of several plants, animals, and insects is becoming more of a priority. The acquisition of 6 quad vehicles last year and a law enforcement dune buggy this year has greatly improved BLM's ability to patrol areas closed to OHV use and to protect natural resources.

CULTURAL HISTORY

The Imperial Sand Dunes have played a significant role in shaping the human history of the Imperial Valley. Located west of the Lower Colorado River, the ISDRA is a unique landscape in Southern California and northeast Baja California. The ISDRA is within or near the traditional lands of the Cahuilla, Chemehuevi, Cocopah, Kamia, Kumeyaay, Mohave and Quechan. The sand dunes are a part of the sacred world for these contemporary tribes. The dunes are a part of their religious and secular history. They contain burial and cremation areas and trail crossings. They offer a variety of resources, such as plants for foods and medicine, and animals for hunting. These tribes advocate protective management of the natural and cultural environment of the dunes.

In early historic times, the dunes would become thought of, not as a resource, but as a barrier to be avoided by the Spanish explorers, like De Anza and Garces, and the American pioneers moving west along the southern emigrant trail. Thus the trail dropped south of the Mexican border to avoid the dunes. It was also a barrier to the expanding railroad network, which diverted the 1877 line north through Mammoth Wash to reach the west coast.

In the twentieth century the Imperial Sand Dunes continued to be a barrier to be conquered. The dunes figured prominently as part of the heroic struggle to tame the Colorado River. An eminent auto enthusiast, named Colonel Ed Fletcher, built a plank road just to demonstrate that the dunes could be traversed by automobile. (The Plank Road has been designated an Area of Critical Environmental Concern. The Plank Road was determined eligible for the National Register of Historic Places in 1986 and nominated for inclusion in 2001.) This travel route would later be paved and used by families of migrant workers escaping the dust storms of Oklahoma and Arkansas.

These same workers also helped to excavate a large channel known as the All American Canal, which was cut through the dunes to convey water from the Colorado River to the agricultural fields of the Imperial Valley. (The All-American Canal has been determined to be eligible for inclusion to the National Register of Historic Places.)

Soon the entertainment industry discovered the unique scenery of the dunes and they became the backdrop for major Hollywood movies, like Beau Gueste and a Bob Hope and Bing Crosby classic movie called the Road to Zanzibar. The dunes have also been used for television commercials, and both commercial and artistic photography.

During World War II, Generals George S. Patton Jr. and Walton Walker were instrumental in developing a facility to train U. S. troops for the North African Theater. The Desert Training Center/California-Arizona Maneuver Area (1942-1944) spanned from Searchlight, Nevada south through eastern California and western Arizona to the U. S./Mexico International Border. The Imperial Sand Dunes offered a unique training environment for combat maneuvers.

Finally, the recreational use of the dunes also has historical roots beginning with local families who would travel to the dunes to drive the plank road and have a Sunday picnic. The dunes also became a place for families to camp and try out, or develop, new machines for driving in the sand. A milestone in the evolution of OHV use came after World War II when surplus Jeeps were available for purchase by the private sector. The Imperial Sand Dunes is also believed to be the birthing place for the early dune buggies. Model A cars with their bodies removed were some of the first buggies attempting the challenges of the sand dunes. Multiple generations of families have loyally followed this tradition, flocking to the dunes to recreate and socialize several times a year. Thus a social culture, unique to the dunes, has developed and will evolve as new generations of families continue to observe their family traditions.

Chapter II

Planning Issues, Concerns And Opportunities

A preliminary step in developing the management program for the current Draft RAMP involved identifying relevant issues, concerns, and opportunities. These issues, concerns, and opportunities were identified with assistance from the public. The public helped to identify what long-term levels of recreational use, services, goods, and environmental conditions are expected from the ISDRA. The issues, concerns, and opportunities help to determine the extent that the 1987 RAMP would need to be revised. The issues, concerns, and opportunities provide information to be considered in developing alternatives for future management of the area.

The 1987 RAMP was used as a reference point to begin identifying issues, concerns, and opportunities. Many of the issues identified during the 1987 planning process remain relevant. Additional issues, concerns, and opportunities were identified through a series of seven public meetings conducted during 2000 and a project comment site on the BLM's INTERNET website. Public participation was encouraged through news releases, a publication in the *Federal Register,* and a mailing of approximately 2,000 newsletters to individuals, groups, and organizations. To further this process, an interdisciplinary working group also was developed from several interested public organizations. The working group consisted of four members representing the following: OHV/Dune Groups, Environmental Groups, Imperial County, BLM.

Using written and verbal comments, the working group identified a series of public issues, management concerns, and resource opportunities. Issues, concerns, and opportunities dealing specifically with the ISDRA that had been identified at previous public meetings, but had been deferred, also were included for consideration. The BLM Field Manager reviewed all issues, concerns, and opportunities. The issues, concerns, and opportunities were also validated through an "Issues Newsletter" mailed to approximately 600 interested individuals and organizations on the BLM's mailing list. The newsletter included a response form to add or further refine issues.

This effort was supplemented in August and September 2001 by another newsletter mailing to approximately 2,000 interested individuals and organizations seeking public input, and through three additional public meetings held in El Centro and San Diego, California, and Phoenix, Arizona.

Only issues, concerns, and opportunities meeting certain criteria were included in the planning process. To be included, an issue, concern, and opportunity had to be:

- Consistent with federal statute and within the jurisdiction of the BLM
- A land management or administrative concern
- Able to be resolved during the planning process

- Producing of a significant long-term effect through its resolution
- Related to the ISDRA

Issues, Concerns And Opportunities

The following issues, concerns, and opportunities captured as a series of questions, were carried forward in the present Draft RAMP management process:

1. *What level or levels of recreation setting will be provided at the ISDRA?*

The ISDRA can provide a wide variety of outdoor settings. Currently the majority of the area is an undeveloped setting where recreational enthusiasts can engage in activities that are not dependent on facilities and experience a moderate level of self-reliance and risk. Natural resources in these areas have not been modified to accommodate human use. About 25% of the ISDRA is in a more developed setting where many of the activities are based at or near facilities. Natural resources in these areas have been significantly modified to accommodate human use. There are currently no guidelines to direct the development, or lack of development, of any of the areas associated with the ISDRA. Public opinion varies as to what range of settings should be accommodated at the ISDRA.

2. How will OHV recreation be managed in relation to resources and other recreational activities, including safety?

Both advocates and opponents of OHV use are concerned about how to manage this activity to minimize impacts on other resources and to be compatible with other recreational activities. The concern focuses around the issues of public health and safety resulting from crowding in some OHV areas, saving camp spots, dumping of gray water and litter. There are also concerns with quiet times, camp area speed limits and the general unruliness of some dunes enthusiasts. Finally, there is a more general concern about the potential adverse affects of OHVs on plants, wildlife, geologic resources and other elements of the ISDRA environment.

Federal regulations at Title 43 CFR Part 8340.0-2 requires BLM to protect the resources of the public lands, promote the safety of all users of those lands, and minimize conflicts among the various users of those lands.

3. *How much facility development and access is appropriate for the ISDRA?*

This issue addresses the suitability of the area to accommodate additional camp pads, contact stations, roads, etc. Chapters III and IV provide a complete description of the facility development anticipated in the next ten years.

4. *How often, where and what should vendors/concessionaires be allowed to operate on public land in the ISDRA to best serve the needs of the public?*

This issue addresses the vendor program in the ISDRA. This Draft RAMP places a limit on vendors and concessionaires in the ISDRA to those who provide food, goods, or services that support OHV use and camping. A permitting program would provide structure, including time limitations for the vending program. The draft RAMP would designate geographical areas where vending would be permitted.

5. How much impact are the tour buses having on the facilities at the ISDRA and should there be compensation for that use?

There has been a notable increase in visitation to ISDRA by commercial tour buses since the 1987 RAMP was completed. Since the reconstruction of the Osborne Overlook access road and the installation of the pit toilets at the Buttercup Campground, several commercial tour bus companies regularly stop and utilize the facilities. Identification of these companies is difficult due to staffing levels and uncontrolled access to the recreation area. Both areas are BLM managed and maintained roads with commercial vehicle weight limits. It is undetermined if the tour bus traffic significantly increases the level of maintenance and repairs required for the roads and restrooms. It is also undetermined if there are any recreational or resource conflicts.

Federal regulations, Title 43 CFR Parts 2930 and 8370, address issuance of permits for recreation on public lands. These regulations allow the BLM to issue permits in order to manage recreational use, reduce recreational and resource conflicts, and to receive a return for commercial uses of public lands.

6. *How will the BLM conserve the unique natural resources of the ISDRA in an area managed for OHV use?*

The Endangered Species Act of 1973 and the California Endangered Species Act provide for protection of federal or state listed species on public lands in California. BLM consults with the U.S. Fish and Wildlife Service and the California Department of Fish and Game on actions that may affect listed species, such as this management plan. The listed and sensitive species identified in the area are described below.

The Algodones Dunes are home to five special status plant species: the Peirson's milk-vetch, which is listed as threatened under the Endangered Species Act and endangered under California Endangered Species Act, the Algodones Dunes sunflower which is listed as endangered under California Endangered Species Act, Wiggins croton which is listed as rare by the State of California, and sandfood and giant spanish needle which are considered rare and endangered, respectively, by the California Native Plant Society.

One federally proposed lizard species, the flat-tailed horned lizard, occurs in relatively low densities at the ISDRA. The Colorado Desert fringe-toed lizard, a former federal candidate species and BLM sensitive species, is abundant at the ISDRA, especially in

active dunes and psammophytic scrub. Additionally, the federally and state listed threatened desert tortoise probably occurs in the microphyll woodlands on the east side of the ISDRA, as does the Gila woodpecker, a state listed endangered species. Additionally, the BLM sensitive Couch's spadefoot toad probably occurs in the microphyll woodlands on the east side of the ISDRA. The toad is also a state species of concern.

The creosote bush scrub and microphyll woodland habitats adjacent to the ISDRA probably contain the BLM sensitive species, the burrowing owl, which is also a state species of concern. The loggerhead shrike, leConte's thrasher and Yuma mountain lion, all species of concern, also occur at the ISDRA. Additionally, three poorly known beetle species, all BLM sensitive species, occur at the ISDRA: Andrew's dune scarab beetle, Hardy's dune beetle and Carlson's dune beetle.

This draft plan provides for conservation for these species through the North Algodones Dunes Wilderness Management Area, which covers 21% of the ISDRA, and the Adaptive Management Area covering 23% of the ISDRA. These areas would conserve species by reducing vehicle mortality and habitat degradation within their boundaries. They also incorporate large areas of microphyll woodland, active dunes, psammophytic scrub and creosote bush scrub within their boundaries. In addition, other areas of the ISDRA will also be managed, though less intensively, for species conservation through multiple land use. Through the 44% of the ISDRA that BLM is specifically dedicating to the conservation of species, through multiple resource management, combined with the occurrences of species elsewhere in the ISDRA, BLM is ensuring that each plant community and its associated wildlife have adequate conservation.

7. *What level of education and resource interpretation should be provided at the ISDRA?*

This issue addresses the type of interpretive materials (signs, brochures, etc) that should be available to the public to better educate and communicate to them on the critical resources and regulations of the ISDRA.

8. *How will education, law enforcement, and other techniques be used to ensure compliance with laws and regulations at the ISDRA?*

Federal regulations, Title 43 CFR Part 8340.0-2, directs BLM to protect the resources of the public lands, to promote the safety of all users of those lands, and to minimize conflicts among the various users of those lands.

An ever-increasing visitor population during the high use season has created larger crowds in the camping and riding areas. Along with this there seems to be an increase in irresponsible visitors who act without regard to the consequences to themselves or others. The need to develop an educational program to raise the level of awareness of the rules, regulations, and safety concerns was identified by the public. The need to develop better ways of disseminating information to visitors through the use of the

INTERNET and partnerships with the various user groups and businesses that focus on the ISDRA was also identified.

The increase in violence and serious injuries already negatively affects the average ISDRA user. The goal is to increase the amount of law enforcement on an as needed basis. BLM would work with local and regional law enforcement agencies to develop a permanent and flexible solution. Yearly monitoring of all violations and resource impacts resulting from non-compliance will assess the effectiveness of the enforcement. This monitoring would serve as a basis for adjusting the amount of law enforcement officers needed and the tactics that are used. The focus of the enforcement would be directed at the more serious problems and the goal is to increase the quality of use enjoyed at the ISDRA.

BLM would identify other options available to aid in the implementation of the education and enforcement process such as visitor involvement, alternative forms of punishment for certain violations, crowd size limitations, area curfews, and limiting alcohol use would be considered. The various user groups would assist in providing peer volunteers and provide safety rule and regulation information programs. Some options to encourage compliance include court ordered community service and litter cleanups in lieu of fines. This type of program may serve as an alternate form of education and punishment. Crowd size limitations and area curfews may help to reduce the amount of people in the ISDRA and disturbances after hours. The use of alcohol limitation may improve behavior and reduce litter concerns.

9. *What is considered to be the Visitor Supply at the ISDRA? Is it being exceeded and if so, what actions should be taken?*

This issue addresses the number of visitors that are coming to the ISDRA. The visitor supply would be determined by use of the Recreation Opportunity Spectrum. The Recreation Opportunity Spectrum is a system that provides guidelines to manage recreational opportunities, available facilities and visitor supply. This tool would allow BLM to manage the ISDRA based on the type of recreation experience that is desired for a specific area. BLM would manage the ISDRA so that the Recreation Opportunity Spectrum classification is met 85% of the time. If visitation exceeds the supply, management actions can be taken.

10. *How much motorized trespass is occurring in the North Algodones Dunes Wilderness Area, what impacts are occurring, and how can it be eliminated?*

Motorized vehicles are used to illegally enter the wilderness. Although land use monitoring is occurring, the total frequency of trespass is not known. This issue will look at how law enforcement and education can reduce the level of trespass.

11. *What management actions should be utilized for legal motorized access afforded the Border Patrol, California Department of Fish and Game and other law enforcement agencies to the North Algodones Dunes Wilderness?*

The enabling legislation that designated the North Algodones Dunes Wilderness Area was the CDPA. This Act allows for continued motorized use by the California Department of Fish and Game to monitor and maintain their wildlife guzzlers inside the wilderness area. The CDPA also allows U.S. Border Patrol to continue their operations inside the wilderness area. Although these uses are allowed, they have an impact on the wilderness values of solitude and naturalness. This Draft RAMP will discuss at what levels these uses would be allowed, while accomplishing the goals of all agencies involved.

12. *What is the future for the Fee Demo program?*

The Fee Demo Program began in the ISDRA on January 1, 1999 as authorized by Congress through the BLM's appropriation process. There has been controversy over the program since its inception. Responding to public criticism, the BLM entered into a Memorandum of Understanding with the California Department of Parks and Recreation Off-Highway Motor Vehicle Recreation Division, and the California Off-Highway Motor Vehicle Recreation Commission. This Memorandum of Understanding expired on September 30, 2000. In support of this Memorandum of Understanding a technical review team (TRT) was created to provide input about how the collected funds should be spent in the ISDRA. It is expected that the TRT would be reorganized to allow additional public input in the fee demo program.

The 2002 fiscal year Interior appropriations bill extends the Fee Demo test program through September 2002. This is the fourth extension of the original expiration date. It is unknown at this time how many more times it will be extended or if it will become permanent legislation. Currently, the future of the Fee Demo Program across the U.S., including the ISDRA, depends upon the continued re-authorization of this legislation by Congress.

13. *How will priorities be set with potential budget reductions from "green sticker" and allocated dollars?*

In past years, partnerships with the State of California Off-Highway Vehicle Commission and Division have provided a substantial amount of financial support to the ISDRA. Current regulations are making those dollars increasingly more difficult to obtain, causing concern for future programs at the ISDRA. BLM would develop financing solutions for those programs and development projects that warrant continuation. BLM will determine which programs and projects are carried forward.

14. *How will potential/partial closure of the ISDRA to recreational use affect OHV users, vendors and the communities who base their livelihood and income on OHV activities?*

The economic effects of the recreational use of the ISDRA were considered in the development of the alternatives in the Draft EIS. One reason that the Adaptive Management Area was considered in the RAMP was to allow as much recreational use as possible without negatively affecting the biological and cultural resources in the ISDRA.

15. *At what level are noxious weeds occurring within the ISDRA planning area? What measures can be taken to reduce or eliminate them?*

The area has scattered infestations of saltcedar (*Tamarix ramosissima*), leafless tamarisk (*Tamarix aphylla*), Sahara mustard (*Brassica tournefortii*), cheat grass (*Bromus tectorum),* and extensive areas of schismus (*Schismus barbatus).* Infestations of saltcedar occur in the pockets of the eastern dunes where water collects after rainstorms. Large leafless tamarisks are present north of Highway 78 near Glamis. The east side of the wilderness area contains very heavy infestations of Sahara mustard in microphyll woodland, desert dry wash woodland and creosote bush scrub habitats. The mustard has also been sighted near the Buttercup off-ramp between the freeway and the frontage road.

Weeds can be eliminated with herbicide applications on a limited scale. Larger scale removal is not possible due to the large size of the ISDRA and funding limitations. In the future exotic plant removals would focus on areas of high biological value with severe infestations. Eradicating exotic plants over the majority of the ISDRA is not a feasible goal. In the future, biological controls may become available for some of these species for control on a wide scale. However, at this time these methods are not available.

16. *How can air quality standards in the ISDRA be met?*

The Glamis area has intermittently poor air quality resulting from smog and agricultural burning in the nearby Imperial and Mexicali valleys. The ISDRA planning area is located within Imperial County, which is entirely a non-attainment area for ozone, and a partial non-attainment area for respirable particulate matter with a diameter of less than 10 micrometers (PM_{10}). Poor air quality is exacerbated on holiday weekends in the fall and winter. At these times, large numbers of OHV and motorhomes arrive in the Glamis area and create clouds of airborne dust particles and hydrocarbon emissions. BLM would install air quality stations to gather quantifiable data on the impact of OHVs on air quality. Once the impact can be determined, appropriate corrective actions, if any, can be developed.

17. *Can the loss of OHV opportunities throughout the CDCA plan area be mitigated?*

Since the inception of the CDCA Plan in 1980, the demand for areas open to OHV recreational use has increased. At the same time, other management objectives on BLM-managed lands have constrained access to some of the areas used historically for OHV recreation. (For example, OHV use areas have been closed to protect sensitive biological resources.) In revising the 1987 RAMP, the action assessed in this DEIS pertains specifically to BLM-managed lands at the ISDRA. In this context, the BLM will revise the 1987 RAMP to address this concern by analyzing the opportunity to provide camping in alternate areas if camping is closed in more sensitive areas. In addition a revised RAMP for the ISDRA will not result in the closure of other dunes areas in the desert Southwest.

Chapter III

ISDRA Management Direction

This chapter presents management goals and management actions for the ISDRA. Some of the goals and actions are for the entire ISDRA. They are referred to as 'area wide goals' and 'area wide management actions'. Other goals and actions are for only a portion of the ISDRA.

BLM has decided to establish nine separate geographic areas to assist in the management of the ISDRA. These areas are called management areas. This will allow BLM to manage different geographic areas of the ISDRA to meet different goals, such as an area could be wilderness, another area could be rural camping and another area developed camping. The management areas are: Mammoth Management Area, North Algodones Dunes Wilderness Management Area, Gecko Management Area, Glamis Management Area, Adaptive Management Area, Olgilby Management Area, Dune buggy Flats Management Area, Buttercup Management Area, and the Buffer Zone Management Area.

Each of these nine management areas will be managed based on a recreational setting. The recreational setting is used to determine the level of development, the types of facilities that are appropriate and ultimately, the type of recreational opportunity that one will experience. Full descriptions of the intended recreation experiences, attributes and management guidelines for each setting can be found in the 1986 Recreation Opportunity Spectrum (ROS) red book. ROS is standard Agency protocol and is the basic foundation for the description of visitor supply. It has been used by resource management Agencies for over 25 years. Each of the nine areas within the ISDRA will be assigned one of the following recreation setting classifications:

- Rural – The BLM will manage approximately 29,741 acres primarily in this ROS class. These facilities include campgrounds, overlooks, parking lots, and camping pads along Interstate 8 and along Gecko Road. A substantially modified natural environment characterizes this setting. Resources are modified to enhance specific recreation activities. Sights and sounds of humans are readily evident and interaction between users is often moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities are often provided for special activities. Facilities for intensified motorized use and parking are available. Available overnight campsites largely define visitor supply of rural ROS settings.

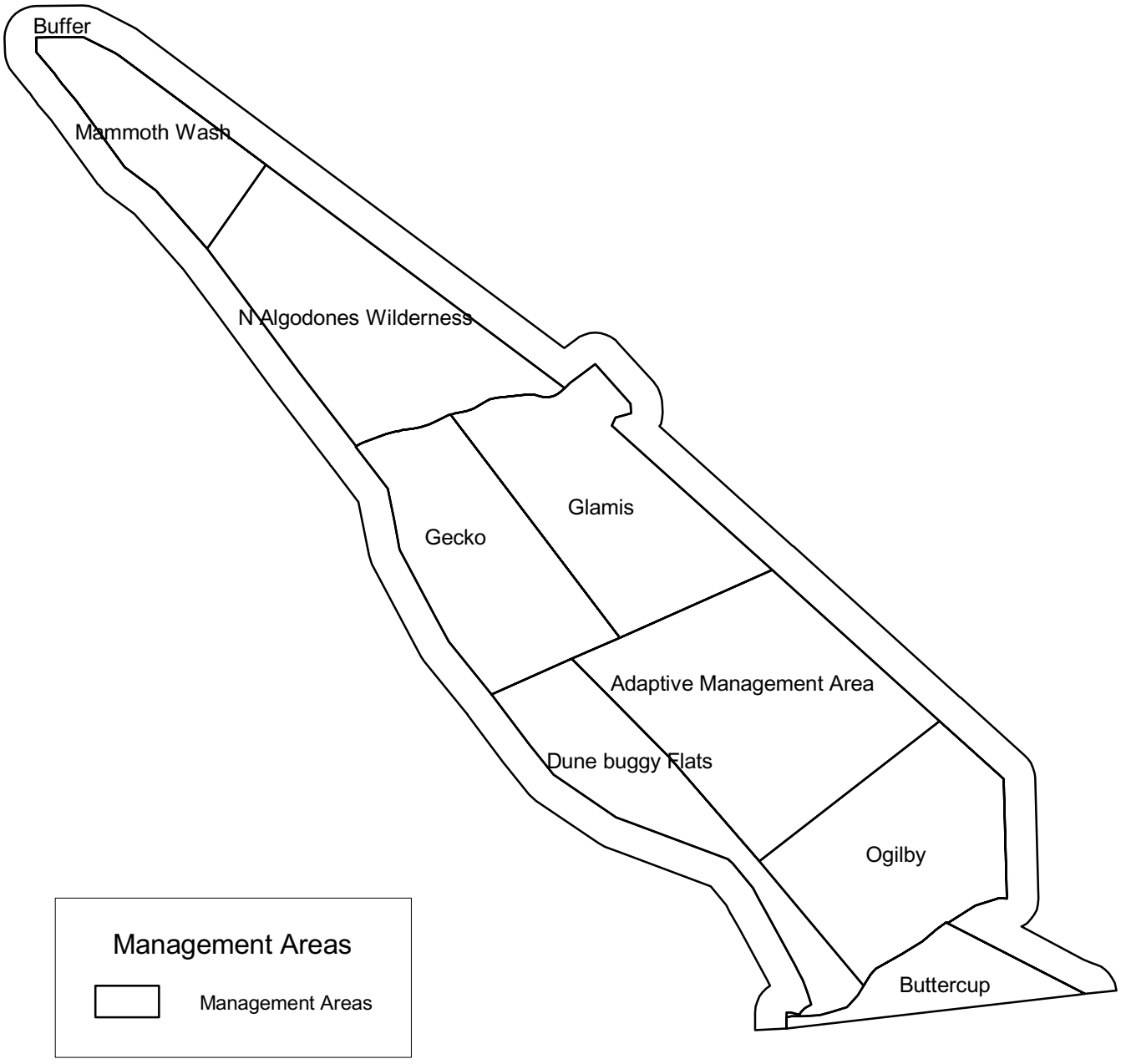
- Roaded Natural – Approximately 64,389 acres primarily along the Highway 78, the railroad, Interstate 8 and the New Coachella Canal will be managed as roaded natural ROS class. Predominantly natural appearing environments characterize this setting. Facilities are designed and constructed to accommodate conventional motorized use. Moderate sights and sounds of humans exist and

interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification is evident, but in harmony with the natural environment. Roaded natural settings may support OHV use in those portions of the ISDRA where it lies between access roads or camping facilities. Available overnight dispersed camp areas largely define visitor supply of Roaded natural opportunities

- Semi-Primitive Motorized – The BLM will manage approximately 105,208 acres in the semi-primitive motorized ROS class, primarily in Mammoth Wash, the Buffer Zone Management Area and the Adaptive Management Area. Mammoth Wash will provide overnight camping and day use Semi-primitive motorized opportunities. The Buffer Zone Management Area will be managed to permit OHV riding only on a limited number of designated routes to minimize OHV impact to vegetation and wildlife. No camping will be available in the Buffer Zone Management Area. The Adaptive Management Area will provide unique world-class day-use opportunities for semi-primitive motorized recreation. A semi-primitive motorized area is predominantly natural or natural-appearing environment of moderate to large size (generally greater than 2,500 acres). The resource integrity of the area is very important to the visitor experience. Concentration of users is low, but there may be evidence of other users. Available overnight, dispersed camp areas in the Mammoth Wash area largely define visitor supply of semi-primitive motorized opportunities, and by the appropriate number of day use permitted groups in the Adaptive Management Area.

- Semi-Primitive Non-Motorized – The BLM will manage approximately 27,695 acres as semi-primitive non-motorized ROS class. These acres occur in a large block in the North Algodones Dune Wilderness Management Area. A predominantly natural or natural-appearing environment of moderate to large size (generally larger than 2,500 acres) characterizes this setting. Interaction between users is low, but there is often evidence of other users. The area is managed with minimal and subtle on-site controls and restrictions. Motorized use is not permitted. (Note: The configuration, size, adjacent highways, railroad and view shed is consistent with semi-primitive ROS class, however primitive recreation opportunities are available in some specific locations). 1 overnight camping party for every 2 square miles largely defines visitor supply.

The goals and management actions, utilizing the ROS classifications, will provide direction for land and resource management in the ISDRA. This chapter identifies area wide goals and management actions for the entire ISDRA and for each management area with specific goals and management actions identified by various BLM programs, including recreation, access and facility development, biological resources, information and interpretive education, commercial activities, funding, health and safety, and cultural resources. This chapter also includes desired conditions for the entire ISDRA and each management area of the ISDRA. (See Map 4.)



Management Areas

Map 4

2 0 2 4 Miles

N

Management Goals For the Entire ISDRA

The ISDRA will be managed to achieve the following three guiding goals. These goals describe a desired condition to be achieved during the lifetime of this plan. They reflect the primary issues, concerns, and opportunities discussed in Chapter II, as well as applicable laws and regulations. These goals are expressed in general terms. The management actions in subsequent sections of this chapter are intended to achieve these goals. The following three guiding goals are for the entire ISDRA.

- Goal 1 - Provide a variety of sustainable OHV and other recreational activities

- Goal 2 - Maintain or improve conditions of the special status species and other unique natural and cultural resources.

- Goal 3 - Create an environment to promote the health and safety of visitors, employees, and nearby residents by working with local, state, and federal agencies and interest groups.

RECREATION GOALS

The ISDRA would be managed as a nationally unique resource for dune based recreation opportunities. It is BLM's recreation goal to manage the ISDRA to provide quality rural, roaded natural, semi-primitive motorized and semi-primitive non-motorized recreation opportunities.

The ISDRA is a unique recreation resource in the southwestern United States. It is a sand dune system of a size and height that is unparalleled. The ISDRA fills a unique and valued niche for providing rural, roaded natural and semi-primitive OHV recreation opportunities. The BLM will provide recreation opportunities throughout the ISDRA for the public. A recreation opportunity is commonly defined as the opportunity for a person to participate in a particular activity in a specific setting, in order to realize a preferred type of experience and subsequent benefits. Thus a recreation opportunity is an integrated package of activities, settings, experiences, and benefits. OHV recreation is a broad term that encompasses many types of desired motorized recreation opportunities. A second recreation goal is to assure the conservation of recreation diversity in order to provide a spectrum of opportunities to meet the diverse tastes and preferences of the American public.

The management of ISDRA will initiate the following:

- Increase effectiveness of law enforcement. Enforce existing rules and regulations, especially on holidays, in order to facilitate a quality OHV recreational experience and remove the "rave party" and lawless atmosphere. Control OHV congregation areas in order to provide safety for the OHV

enthusiast and personnel. (The management actions for this bullet are located with the health and safety management actions.)

- Intensive resource and recreation use monitoring to determine the relationship between OHV use, camping and distribution of various species of concern and to adjust recreational use as needed to meet guiding goal number 2. (The management actions for this bullet are located with the biological resources management actions. The monitoring plan is in Appendix 1.)

- Adaptively manage OHV recreation to meet ROS settings on non-holiday weekends, accommodating ROS settings changes during the six major holidays that are planned exceptions to the normal setting. Establish triggers to activate alternative management actions when visitation exceeds the supply of available camping opportunities by 15% of the time on a yearly basis. Establish more restrictive triggers to activate alternative management actions when visitation exceeds the supply of available camping opportunities by 20% of the time on a yearly basis or for 15% of the time for two consecutive years.

- Providing quality informational and interpretive materials and programs to enhance the visitor's knowledge of the ISDRA's flora, fauna, historic, recreational, and other significant resources and opportunities. (The management actions for this bullet are located with the management actions for education and interpretative education.)

- Accommodate OHV enthusiasts in the ISDRA without displacing the activity into less intensively used areas within the California desert.

To assist in accomplishing the two recreation goals, BLM has studied the available camping sites at the ISDRA. BLM has assigned ROS classes to each of the nine management areas, as shown in the column titled "Desired ROS Class" in Table 2. The ROS class determines the number of campsites that can be available per acre for a management area. The column titled "Number of Acres for Overnight Group Camping" provides the acreage available for camping for the campsites and each management area. Since the actual geography and conditions of an area (for example a step slope or vegetation) generally reduce the actual number of campsites that can be used for camping, BLM reduced the number of available campsites by ten percent. The number of available campsites by campground for each management area is shown in the column titled "Reasonable Number of Usable Campsites" in Table 2. In order to allow groups to camp together, as is a common practice at the dunes, BLM assumed six primary camping vehicles would be in each camping group. The total number of primary camping vehicles for each area is shown in the column of Table 2 titled "Number of Vehicles per Campground. To determine the total number of campers that could be accommodated at the dunes using the assigned ROS classifications, BLM assumed that 3.5 people would be camping with each primary camping vehicle. The total number of campers is given in the column titled "Number of Campers per Campground" in Table 2.

To determine if visitor supply was being exceeded, BLM would implement a monitoring plan for visitor and OHV use. (The detailed plan for this monitoring is in Appendix 2.)

TABLE 2
AVAILABLE CAMPING SITES AND TOTAL CAMPERS FOR EACH MANAGEMENT AREA AND CAMPGROUND

Management Area and Campground	Desired ROS Class	Number of Acres for Overnight Group Camping	Number of Acres per Camp Site	Maximum Number of Camp Sites	Reasonable Number of Usable Camp Sites (90% of Max.)	Number of Vehicles per Campground (Assumes 6 vehicle per camp Site)	Number of Campers per Campground (Assumes 3.5 People per Vehicle)
Gecko Management Area							
Cement Flats	Rural	4	0.5	8	7	43	151
Camping Pads 1-5	Rural	13	0.25	52	47	281	983
Gecko Campground	Rural	41	0.5	82	74	443	1550
Keyhole Campground	Rural	0.5	0.5	1	1	5	19
Roadrunner Campground	Rural	12	0.5	24	22	130	454
Subtotals		71		167	150	902	3,156
Buttercup Management Area							
Buttercup Campground	Rural	69	0.5	138	124	745	2608
Midway Campground	Rural	6	0.25	24	22	130	454
Greys Well (dispersed area)	Rural	357	0.5	714	643	3856	13495
Subtotals		432		876	788	4,730	16,556
Mammoth Management Area	Semi-Primitive Motorized	1,000	10	100	90	540	1890
Glamis Management Area	Roaded Natural	2,014	3	671	604	3625	12688
Ogilby Management Area	Roaded Natural	1,539	3	513	462	2770	9696
Dune buggy Flats Management Area	Roaded Natural	1,800	3	600	540	3240	11340
North Algodones Dunes Management Area	Semi-Primitive Non-Motorized	27,089	1,280	21	19		76
Total					2,635	15,808	55,403

ACCESS AND FACILITY DEVELOPMENT GOALS

The all-encompassing access and facility development goal is to develop or retrofit facilities, in the appropriate ROS classes, to accommodate visitation and meet all disability regulations and standards. Ensure that little or no development occurs in primitive areas. New developments will meet the all disability regulations and standards and employ universal design concepts.

As the area available to OHV recreation opportunities decreases in California, the demand for the remaining OHV recreation areas continues to increase. This is especially the case in the ISDRA as the largest sand dune area open to OHV use. As the visitation levels have risen over the years, suitable camping locations and non-sandy surfaces to camp on have become prime commodities. The current facilities were not designed to accommodate the level of visitation the ISRDA now regularly receives on holidays. This has led to overcrowding in the campgrounds, overuse of the associated facilities, and a decrease in visitor satisfaction. The following are the goals for access and facility development:

- Design and construct camping and associated facilities in areas according to the designated ROS to meet the demand of the activity.

- The design of all new facilities will meet the social needs of the visitors and the management needs of the BLM. While the campgrounds and facilities have become overburdened, so have the facilities used by the BLM and other cooperating agencies. Facilities such as ranger stations need to be constructed or retrofitted to meet the needs of the field staff. Staff members currently work out of portable trailers to provide law enforcement and emergency medical services. The lack of the proper facilities has created safety hazards and ineffective management for employees in the field. BLM would construct or retrofit facilities to meet the needs of the staff in strategic locations within the planning area.

- Establish a campground reservation system and designated campsites for some campgrounds to improve the visitor experience and reduce visitor conflicts.

- Increase maintenance on existing access roads.

OHV recreation is a popular activity for physically challenged people. OHVs provide an opportunity for the physically impaired to have a high level of independence and feeling of freedom. While OHV recreation is fun and challenging, activities around the campsite are extremely difficult in the sandy environment. Objectives related to enhancing universal access are:

- Meet or exceed all legal requirements associated with accessibility issues.

- Employ universal design practices in the development of all new facilities.

BIOLOGICAL RESOURCE GOALS

The management plan contains two primary goals for biological resources in the ISDRA:

- Maintain viable populations of all native species throughout ISDRA. The ISDRA contains unique species of plants, invertebrates and wildlife each with unique habitat requirements. BLM will use the results of monitoring threatened and endangered species, as well as the monitoring of highly visible indicator species such as the Coachella Valley fringe-toed lizard to measure the health of the habitat. The plan is to monitor a representative group of species to determine the viability of the native species as a whole.

- Maintain habitat connectivity throughout the ISDRA. This goal's purpose is to limit habitat fragmentation and maintain transfer of genetic material from all sub-populations throughout the ISDRA. Such genetic transfer is essential to maintaining viable populations. The use of the North Algodones Dunes Wilderness Management Area and the Adaptive Management Area for species conservation, rather than the use of numerous small, disconnected geographic areas, is important to meet this goal.

INFORMATION AND INTERPRETIVE EDUCATION GOALS

The primary information and interpretive education goal is to promote public awareness of the diverse and unique dunes environment. To accomplish this goal, BLM would develop public awareness of the diversity and importance of the ISDRA resource as it relates to the environment and recreational uses. BLM would increase the public's knowledge and understanding of responsible use of OHV, other forms of backcountry travel, and low impact principles applicable to all recreational activities. BLM would increase the public's knowledge and understanding about public land use, management issues, and land ethics.

During the past twenty years, the BLM El Centro Field Office has provided the public with an array of educational, safety, and interpretive information on the ISDRA. Information and interpretative materials have been provided to the public through brochures, maps, BLM's website, media, volunteer organizations, and staff outreach on major holiday weekends at the ISDRA. In addition, the El Centro Office staff participates in major OHV events in southern California, to further educate and inform the public about land use and other management issues at the ISDRA. In spite of the outreach efforts made by the BLM, it is recognized that additional efforts must be made to address the pressing safety and environmental concerns at the ISDRA. BLM's management objective is to facilitate and encourage the implementation of public education, safety and interpretation programs through coordinated efforts from partnerships with volunteer organizations and other agencies.

A cultural resources education and interpretation program will also be developed. This program will include knowledge obtained from inventories and the cultural landscape. Signs, kiosks, literature, and other forms of education and interpretation, including the Junior Ranger program, will continue to be developed to inform the public of the relevance and value of cultural and natural resources.

COMMERCIAL ACTIVITY GOALS

The over-riding commercial activity goal is to manage recreational and commercial activities at ISDRA to accommodate visitor needs, improve visitor experience, and where consistent with management goals, to allow economic benefits for local and regional communities.

There are three categories of activities, vending, tour busses and concessions, which are generally considered commercial uses. Each type of activity has specific issues that need to be addressed in the Draft RAMP.

Vending: Vendor permits are temporary, short term, non-exclusive, revocable authorizations to sell goods or services in conjunction with recreational activities. At ISDRA, with its potential to draw large crowds for several days at a time, issuance of approximately 80 permits is currently part of BLM's management activities.

During the recreation season, some areas of ISDRA resemble a medium sized city. Along with the recreational participants and project staff, a number of vendors have established a variety of small businesses to cater to the needs of the visitors. Some permitted vendors set up at fixed sites, and some operate mobile business providing both commodities and services. Commodities include fuel, water, food and ice, firewood and other camping supplies, vehicle parts and accessories, and souvenir items including t-shirts. Services include mobile septic pumping, and vehicle related services that include mechanical repairs, tire services, and welding.

As with all similar activities on BLM managed lands, these activities require a permit, and fee. Regulation includes payment of a percentage of gross revenue. Currently, vendors are required to pay for vending time in advance, for a 20 day fixed price, or on a daily rate in lieu of the percentage of gross revenues. In addition, before BLM issues a permit, vendors must have insurance and valid county permits for the specific activities they are involved in. Some of the local permits include:

- Peddler's permits
- Food vendor permits (to obtain these, the vendor food preparation areas are subject to an initial county inspection)
- Business licenses (from the Imperial County clerk's office)

Vending activities at ISDRA can contribute to the visitors' experience by providing goods or services on site. This allows a longer stay by visitors by eliminating the need to break camp to re-supply or obtain services. Some vendors at ISDRA have become institutions within the recreation community that frequents the ISDRA. They contribute to local and regional economies, and the associated permits are a source of income to the local government entities.

On the negative side, the vendor program requires additional management resources often at times of peak use when the demands on staff are greatest. Unless properly managed, vending can provide inappropriate materials, can contribute to the perception of lawlessness, can negatively affect public health or safety, and can provide negative effects on the resources of the public lands.

Some of the issues regarding vending at ISDRA include:

- BLM staff is insufficient during the peak use weekends for routine duties such as compliance monitoring of vendors.

- Anecdotal reports have been received of multiple vendors operating under one permit.

- Safety hazards associated with mobile vending utilizing already crowded roads and highways. For example, "attractive nuisance" such as ice cream vendors tempt children to run across congested roads.

- Mobile vending adds to the congestion of already crowded roads and staging areas, making emergency response by law enforcement or emergency medical service staff more difficult.

- Hazards are created by high-speed vehicle use near vending areas.

- Semi-permanent occupancy of ISDRA by some vendors, between the weekends.

- Conflicts arise between vendors for "choice" vending locations.

- BLM is unable to accurately assess the gross revenues for vendors.

- Cost recovery supports cost of issuing permits only, and little is available to support onsite program monitoring.

- BLM is involved in checking county revenue generating permits, while enforcement expertise for county issues is not available at vending sites. This is particularly important for food vendors. Anecdotal reports exist that some of the food vendors are not meeting sanitation codes, but BLM officers have no training or enforcement authority.

In order to be consistent with the commercial activity goal for the ISDRA, items sold, or services provided will:

- Directly enhance the visitors' experience.
- Be available in locations that are compatible with desired types of experiences.
- Not be detrimental to the health and safety of visitors, employees or nearby residents.
- Contribute to the funding mix for project management, and require a level of staff oversight that does not detract from other duties during times of peak demand.
- Not detract from resource sustainability.

Throughout the life of the Draft RAMP, vending at ISDRA will remain an important issue, and specific actions will be developed to adapt to changing conditions. The direction is to allow vending where it is consistent with the ROS for an area and the above issues are addressed.

Tour Busses: Tour busses are operated as a commercial profit-making venture, and are considered a recreational use of public lands when they utilize ISDRA facilities. Recreational uses for commercial purposes are considered as activities that require a permit.

Tour Busses frequently traverse ISDRA, both on Highway 78, and across Interstate 8.

On Highway 78, the busses sometimes drive up Osborne Overlook. When the activity is conducted during off-peak recreational times, the use is consistent with the management goals. There is, however, concern that the types and sizes of vehicles represented are inappropriate for the capabilities of the road to the overlook.

On Interstate 8, tour busses often utilize Buttercup campground for a rest stop, and many of the passengers utilize the vault toilets that have been provided for campers. As with the use of Osborne Overlook, use by the general public is not inappropriate during the off-peak times. These toilets were constructed with user funds from OHV activities, and more importantly, are expensive to pump, and if heavily used, become unavailable for the designated use by fee-paying recreational participants. There is also potential for the busses to impact the access roads, and some concern about safety from the additional use.

The direction for managing the tour busses is:

- On Highway 78, BLM will evaluate the condition and use limits for Osborne Overlook. If the issues are sufficiently serious, BLM will close the road to commercial uses and cite violators.

- On Interstate 8, where tour busses are utilizing Buttercup Campground and Osborne Overlook, and at Osborne Outlook, BLM will work to establish a list of companies and drivers that are stopping with groups and assess appropriate permit fees. These funds will be utilized to cover the costs of the activity. In addition, BLM will work with the operators to improve level of services that they may need. Under that scenario, BLM will identify and cite non- permitted operators.

Concessions: Concession leases authorize the operation of recreation-oriented services and facilities by the private sector on BLM lands, in support of BLM recreation programs. Concessionaires are authorized though a concession lease which is administered on a regular basis and which requires the concessionaire to pay fees in exchange for the opportunity to carry out business activities. For example, many services in National Parks are provided by concessionaires, rather than by individual vendors, and many of the management activities are often provided by the concessionaire, rather than by the managing agency.

Currently, BLM has entered into a contract agreement with a private entity to manage the fee collection program. The vendor supplies and maintains the automated pay stations, collects the funds, and periodically pays the BLM a percentage of the revenue on a sliding scale based on the gross revenue. The contract for fee collection is a small step toward a concession program, under which a private contractor would manage some of the program at ISDRA, or provide goods or services under a contract with the BLM.

As part of the development of this plan, BLM is exploring possibilities of a more active concession program. Various aspects of management for portions of the entire project may be suitable for private or other government entity management. Under this scenario, the concessionaire provides staff and other resources at cost and profit basis, or often for a percentage of the gross revenues. Some of the most common concessionaire activities include: campground management, fee collection, vendor management, and exclusive contracts for all vending services.

Another possibility for concession services would be to contract for “event management” staff to augment BLM on-site personnel for many aspects of the peak use weekends.

This plan does not propose additional concession services at this time, but the possibility exists that new developments will make concession management a viable alternative during the life of this plan.

FUNDING GOALS

The funding goal is that funding for the ISDRA will become less dependent on contributed funds for base operations. If additional funds are available (i.e. grants), they will be used for additional or above base expenses that vary year to year.

Funding for all operations in the ISDRA comes from Congressional appropriations, fees, and grants. During the past several years dramatic changes in the supply and demand for

funding have required BLM to re-examine the future funding of the ISDRA. The current funding will not sustain the current level of service.

BLM will maintain funding consistent with the management actions whenever possible. If all funding sources are exhausted and funding needs have not been met, the BLM will not operate in deficit. BLM will be required to discontinue services permanently or temporarily until it can obtain funding.

The BLM has had a productive partnership with the California State Parks Off-Highway Motor Vehicle Recreation (OHMVR) Division and the OHMVR commission for over a decade. Together they have funded to the El Centro Field Office millions of "Green Sticker" dollars for improvements in OHV management and services in the ISDRA. This funding program was conceived to supplement appropriated dollars for the benefit of OHV enthusiasts and was initially used in that manner. However, over the years the BLM has become more and more dependant on OHMVR grants to supplement base appropriated funding.

It is BLM's goal that all contributed funds will be used to supplement, not replace, federal funding. The goal is for acquired grants to become project and task oriented and not be utilized for base operations and maintenance. However, BLM will continue to work cooperatively with the OHMVR Division as a key partner.

Through the authority of the fee demonstration (demo) program, the BLM began to charge and collect fees in the ISDRA on January 1, 1999. The fee demo program was designed to return collected revenue to the site of collection for improvements. After the beginning of the program, a Memorandum of Understanding was developed and signed by the OHMVR commission, the OHMVR Division, and the BLM. A technical review team (TRT) was designated to provide input on the expenditures of collected revenues in the ISDRA. Together, with the BLM, the TRT has conducted outreach to the visitors of the ISDRA to interpret the fee demo program and collect ideas on how the funds should be used. This new source of revenue has the potential to allow the BLM to increase services, continue its partnership with the OHMVR division while becoming less dependent on grants.

BLM will continue to charge and collect fees in the ISDRA in the most efficient manner. All net revenues collected in the ISDRA will be spent in the ISDRA. The BLM will maintain a diverse TRT and continue to work cooperatively with them on the management of the fee program. The ISDRA fee schedule will be based on the amount needed for cost recovery and to maintain operation and maintenance. The fee schedule will be used to adaptively manage temporal and spatial visitation patterns. The fee area will encompass the entire planning area.

Appropriated federal recreation funds for the BLM are currently not enough to accomplish base operations and maintenance at ISDRA. BLM must develop innovative strategies to acquire a maximum amount of appropriated recreation funding. The goal is for base salaries for permanent staff will be funded out of appropriated dollars and fee

dollars. BLM must work cooperatively with all other interested partied to effectively communicate the need for an increased amount of appropriated allocations to budget federal personnel and appropriation committees.

HEALTH AND SAFETY GOALS

The main health and safety goal is to improve the health and safety of visitors, employees, and nearby residents by working with local, state, and federal agencies and interest groups. Another health and safety goal is to promote safety through education about the rules and regulations at the ISDRA. A third goal is to promote safety through law enforcement activities to improve compliance with the rules and regulations at ISDRA. Lastly, it is a health and safety goal to improve health by addressing the air quality around established roads with the management of dust and particulates through stabilization and/or reduction in accumulation, as appropriate and practical, and the enforcement of speed limitations.

Federal regulation Title 43 CFR Part 8340.0-2 directs BLM to protect the resources of public lands, to promote the safety of all users of those lands, and to minimize conflicts among the various users of those lands. Both the BLM and ISDRA visitors are concerned about compliance with laws and regulations and current law enforcement issues. Increasing visitor populations during the OHV-use season have created larger crowds throughout the ISDRA. In addition, there seems to be an increase in visitors with a reckless disregard for the ISDRA laws and regulations. During the six major holiday periods, there is a need to increase the level of enforcement without greatly impacting the quality of the recreational experience currently enjoyed by the majority of the visiting public.

The BLM has historically been the lead agency for law enforcement in the ISDRA. Within the last two years, ICSO has acquired four grants from the OHMVR division for law enforcement activities related to the ISDRA. This provides the opportunity for the ICSO to work more closely and cooperatively with the BLM to provide law enforcement services. If the ICSO provides a substantial amount of law enforcement it would allow the BLM Rangers to focus on federal and state laws, rules, and regulations while ICSO could handle state and local laws, rules and regulations. Some federal issues have not been adequately been addressed due to a lack of Rangers. BLM does not have enough Rangers to create a safe environment during peak use times. On-going coordination with and supplemental use of other law enforcement officers will continue to be needed. Supplemental communication (radio and dispatching) will be necessary to allow Rangers to operate safely. In addition, the level of lawlessness in certain areas of the ISDRA creates an unsafe environment. The use of alcohol at these areas is believed to contribute to the level of lawlessness. In addition, the frequency of drinking and reckless driving at the ISDRA is at an unacceptable level. This, too, contributes to creating an unsafe environment. (Please see the discussion on Competition Hill and Oldsmobile Hill in the Glamis Management Area section for more details.)

As with any vehicle use activity, there are many rules and regulations. It is a health and safety goal to provide education concerning the rules and regulations relating to OHV use at ISDRA. It is also a health and safety goal to provide education to encourage compliance with the rules about camping related issues such as disposal of trash and gray water. (The management action to fulfill the health and safety public education goal is located with the information and interpretation education management actions.)

At this time, the county emergency medical service providers offer different levels of service in different geographical areas in the ISDRA. In the Glamis and Gecko Areas, the county contracted emergency medical service is generally limited to the on-road areas. When available, a county contracted advanced life support provider will ride along with a BLM staff person when en route to a medical aid incident to offer assistance. In the Buttercup and Dune buggy Flats Areas, the contracted county emergency medical service provider offers both on and off road assistance. They respond to incidents in non-BLM 4x4 vehicles to provide advanced life support medical aid.

OHV recreation is an inherently high-risk activity. In order to provide the best service for visitors to the area, the BLM has a staff of Rangers trained in basic life support. However, due to the increased visitation to the area there has been a need for an increased level of emergency medical service. In conjunction to the increased visitation, BLM has implemented the fee program. Along with the fee program is an expectation of an increased level of emergency services. In response to the need and expectation, BLM has increased its staff to accommodate the volume of emergency medical service incidents. As visitation levels and OHV recreation change over time, the BLM will work cooperatively with Imperial County to respond to the emergency medical service needs of the ISDRA visitors.

The ISDRA is located in an air quality non-attainment area for PM_{10} and ozone. The activities at the ISDRA contribute an unknown amount of pollutants into the air. Air monitoring stations are necessary to evaluate the contribution to the non-attainment due to ISDRA use. Several measures are currently conducted to improve air quality. These measures include sweeping of paved roads, maintenance of unpaved roads through the application of dust control agents and grading, speed limitations and controlled access.

The management direction is to:

- Work cooperatively with the county, the contracted emergency medical service providers, and other interested agencies, to find innovative methods of providing the highest level of emergency medical service needed to adequately serve the visitors of the ISDRA, as needs fluctuate.

- Provide adequate basic life support training to the ISDRA staff as a minimum level of emergency medical service.

- Provide adequate off road emergency medical service support to the county and visitors throughout the ISDRA.

- Evaluate ISDRA impact to air quality non-attainment. Implement dust control activities to improve air quality.

- Implement a monitoring plan for air quality using the weather stations. Analyze the monitoring data to compare the potential impact to air quality due to recreational use. Adjust recreational use to meet guiding goal number 3. (The detailed plan for this monitoring is in Appendix 1.)

CULTURAL RESOURCE GOALS

The primary goal for cultural resource management within the planning area is to conserve and preserve selected cultural resources, and the cultural landscape, to the greatest extent possible, while providing for other uses for the ISDRA.

A cultural landscape assessment indicates that the Native American tribes whose traditional territory included or were adjacent to the dunes have maintained a strong connection with the dunes and generally view the landscape as significant. Another cultural resource goal of the Draft Ramp is to manage the recreational use of the ISDRA to reduce impacts to the environment and cultural landscape.

Cultural resources in the management area represent both prehistoric and historic eras. The planning area includes about 200,000 acres, of which about 5% will be inventoried for this planning process. Known prehistoric sites are dominated by ceramic scatters and lithic scatters, but trails, rock enclosures, and temporary camps have been reported. Key historic resources include remnants of the Plank Road, All American Canal, and Coachella Canal, all of which are National Register of Historic Places properties. Other recorded historic era resources include railroad construction camps and communities like Ogilby, Glamis, and Acolita; camps related to construction of water systems; and camps and activity areas related to the World War II Desert Training Center.

Inventories will be conducted to broaden knowledge of cultural resources. A third cultural resource goal, to be conducted as resources and priorities allow, is for identified resources to be evaluated under the criteria for the National Register of Historic Places. Eligible resources will be formally nominated to the National Register, as appropriate.

Development of a program of public education and interpretation will continue. Signs, kiosks, literature, and other forms of education and interpretation, including the Junior Ranger program, will continue to be developed to inform the public of the relevance and value of cultural resources. (The management action to fulfill the cultural resources public education goal is identified with the information and interpretation education management actions.)

ISDRA Area Wide (AW) Existing Condition, Desired Future Condition and Management Actions

EXISTING CONDITION: Currently the ISDRA offers a wide variety of recreation opportunities. Land designations range from wilderness to intense use open areas. There are facilities in several of the areas, and visitors can utilize designated areas as well as dispersed sites. Visitation levels vary greatly from almost zero in the summer to approximately 200,000 on Thanksgiving weekend. The current staff can successfully manage the ISRDA on regular weekends but staffing size limitations has resulted in difficulty managing the holiday weekend visitation. A general perception of lawlessness has developed because compliance with State and Federal laws and public and employee safety has decreased.

DESIRED CONDITION: The ISDRA will be managed and divided into several management areas. Each of these management areas will be managed under a specific ROS classification to meet the needs of the visitors and management. There will be an array of ROS management classes ranging from semi-primitive non-motorized to rural. Each of these management areas will have a visitor supply that will be met at least 85% of the time during the visitor season (Oct 1st - May 31st). If visitation exceeds the supply over 15% of the time during the season, actions will be considered to limit access to the recreation area. Additionally, if visitation exceeds supply over 20% of the time during the season or 15% of the time during the season for two consecutive years, more restrictive actions will be considered to limit access to the recreation area. OHV recreation resources will be maintained while conserving the natural, and cultural resources. The ISDRA will continue to provide the sociological and economical benefits it has in the past. Law enforcement, volunteer services staff, and emergency medical service staffing will be adequate for the fluctuating levels of visitation. Education and interpretation will promote proper land use ethics.

MANAGEMENT ACTIONS:

Recreation

- AW # 1. Manage use to meet the supply set forth in all management areas.

  15% Trigger: If supply is being exceeded over 15% of the time during a one year use season (8 months, October – May), management will take the following actions:

  - Initiate Resource Condition Survey and Social Survey
  - Provide Information/Education to promote off peak season recreation
  - Feasibility of the following actions will be evaluated:

    - Expand the reservation system to 50% of the designated campsites
    - Differential fees (for example, different fees for camping at Gecko Road and Dune buggy Flats)
    - Enhance Information/Education

20% Trigger: If supply is being exceeded over 20% of the time during a one year use season (8 months, October – May) or 15% of the time during two consecutive years, management will take the following actions:

- Initiate Resource Condition Survey and Social Survey
- Provide Information/Education to promote off peak season recreating
- Expand the reservation system to 50% of the designated campsites
- Initiate Differential fees (for example lower fees for less popular campgrounds or dates)
- Enhance Information/Education
- Limit the number of users in the ISDRA

- AW # 2. The fee business plan will be updated within two years of the completion of this plan. Fees will be collected in all management areas. Fees will be based on the level of demand per weekend and cost recovery. Fees will be used to disperse visitation.

- AW # 3. Conduct a visitor survey to provide public input on safety, natural and cultural resources concerns and management of the ISDRA.

- AW # 4. For every three acres of camping areas closed for resource conservation in roaded natural ROS class, 0.25 acres of camping area will be developed or constructed in a rural area. (The replacement acreage was determined using the amount of acreage that would result in the same number of camping sites for the recreational experience, but in an alternative ROS classification. The number of camping sites per acre is shown in Table 2. For the roaded natural ROS classification, three acres is used for one camping site. For the rural ROS classification, 0.25 acres is equivalent to one camping site.)

- AW # 5. For every .25 acres of camping areas closed for resource conservation in rural ROS class, .25 acres will be developed or constructed in a rural area. (The replacement acreage was determined using the amount of acreage that would result in the same number of camping sites for the recreational experience. The number of camping sites per acre is shown in Table 2. For the rural ROS classification, 0.25 acres is equivalent to one camping site.)

- AW. # 6. For every 10 acres of camping closed for resource conservation in semi primitive motorized area, .25 acres will be developed or constructed in a rural area. (The replacement acreage was determined using the amount of acreage that would result in the same number of camping sites for the recreational experience, but in an alternative ROS classification. The number of camping sites per acre is shown in Table 2. For the semi private motorized ROS classification, ten acres is used for one camping site. For the rural ROS classification, 0.25 acres is equivalent to one camping site.)

- AW # 7. Implement the visitor and OHV use survey in Appendix 1.

Access and Facilities

- AW # 8. Replace or retrofit all facilities to meet or exceed universal and disability regulations and guidelines, as appropriate.

- AW # 9. Construct user friendly and disability compliant trash collection facilities. Develop a workable solution and construct trash bin "loading docks" to ease and ensure the proper use of trash dumpsters.

- AW # 10. Designate a staff of one permanent lead and three term maintenance workers for the care of the ISDRA facilities and acquire the necessary heavy equipment for the maintenance staff.

Biological Resources

- AW # 11. Implement a monitoring plan for three plant species of concern, Peirson's milk-vetch, Algodones Dunes sunflower, and Sand food, in five areas, including Mammoth Wash Management Area, North Algodones Dunes Wilderness Management Area and the Adaptive Management Area. Analyze the monitoring data to compare the trend is species abundance due to the different types of recreational use in each area. Adjust recreational use to meet guiding goal number 2. (The detailed plan for this monitoring is in Appendix 1.)

- AW # 12. Implement a monitoring plan for two lizard species of concern, Colorado Desert Fringed Toed Lizard and Flat-tailed horned lizard, in several areas, including the Wilderness North Algodones Dunes Management Area and the Adaptive Management Area. Analyze the monitoring data to compare the trend in species abundance due to the different types of recreational use in each area. Adjust recreational use to meet guiding goal number 2. (The detailed plan for this monitoring is in Appendix 1.)

- AW # 13. Implement a monitoring plan for desert microphyll woodland vegetation. Analyze the monitoring data to compare the trend in vegetation cover due to the different types of recreational use in each area. Adjust recreational use to meet guiding goal number 2. (The detailed plan for this monitoring is in Appendix 1.)

Information and Interpretation Education

- AW # 14. Work cooperatively with the environmental community, the OHV community, and other local, state and federal agencies to develop and implement

interpretive and public relations programs about safety, rules & regulations, desert survival, and the natural, historical, and recreational resources of the ISDRA.

- AW # 15. Develop interpretive brochures, maps, etc. specific to ISDRA issues with emphasis on resource conservation, sensitive species, recreation issues, clearly defined rules and regulations, open and closed areas, permit required areas and consequences of violations. Create a "Quick Facts" brochure which addresses the following ISDRA topics: (1) recreation, safety, and law enforcement, (2) biological and cultural conservation, and (3) facilities (including waste management). Develop and maintain information stations throughout the ISDRA.

- AW # 16. Conduct local area and regional outreach through the OHV community and OHV businesses. Strengthen BLM's involvement and participation in organized OHV events in Southern California. Participate and work closely with OHV organizations to improve communication concerning land use and management issues at the ISDRA.

- AW # 17. Utilize the INTERNET for both national and international outreach.

- AW # 18. Continue the ISDRA Jr. Ranger Program with additional involvement from law enforcement, rangers, cultural and resource personnel.

- AW # 19. Establish volunteer host programs at campgrounds. Establish volunteer clean ups and other volunteer projects.

Commercial Activities

- AW # 20. All permitted activities will be done in a fashion that will have the lowest chance of visitor conflicts. (Non-recreational commercial activities will generally not be permitted during the holidays or busy periods. Vending will be allowed from the first of October through the end of May, on Friday through Sunday. Exceptions will be made for major holidays. This change in the vending schedule is to plan the vending activities so that they support the recreational experience. Since the majority of the recreational enthusiasts that benefit from the vending activities frequent the dunes on the weekends, this schedule adjustment will provide more efficient support of the recreational experience.) All significant commercial activities will be monitored by the BLM to ensure compliance with the rules, regulations, and stipulations.

- AW # 21. The price structure for vending in the ISDRA will be independently reviewed every two years, beginning in 2003, based on this review, the fee for special recreation permits will be adjusted.

- AW # 22. A supplementary rule will be written that states that all of a vendor's time on site will be considered part of his/her 14-day limit on camping.

- AW # 23. A supplementary rule will be written that states that if a stationary vendor receives three citations his/her permit will be revoked for the remainder of the use season. If a mobile vendor receives two citations his/her permit will be revoked for the remainder of the use season. The mobile vendors have a lower threshold due to the more dangerous nature of a mobile business. All permits are still discretionary and warnings are at the discretion of the authorized officer.

Funding

- AW # 24. Develop and maintain a five-year budget for the ISDRA that utilizes federal appropriations and demo fees as the funding source for base operations and grants, partnerships and other funding for supplemental needs.

Health and Safety

- AW # 25. Radio communication for the volunteer service staff and emergency medical service will be maintained at a level equal to, or greater than, the current holiday incident command system. The radio system will be developed and maintained at a level that will ensure the safety of the staff and the public.

- AW # 26. Volunteer service staff and emergency medical service staff members will continue to conduct dispatching duties from Cahuilla Ranger Station until an agreement can be reached to provide the same level of service with another dispatch center, preferably, the Federal Interagency Communications Center in San Bernardino, CA.

- AW # 27. As funding is available, modify volunteer service staff and emergency medical service staffing in the following manner:

  Permanent park rangers (increase from 1 to 4)
  Seasonal park rangers (decrease from 9 to 0)
  Permanent volunteer service staff and emergency medical service park rangers subject to seasonal furlough (increase from 0 to 10) (This would help address the extremely high employee turnover rates, as well as enable the ISDRA staff to better address the needs of the public.)
  Administrative assistant for Dunes Manager (increase from 0 to 1)
  Assistant Dunes Manager (increase from 1 to 2)
  Emergency Medical Service Coordinator (increase from 0 to 1)
  Additional personnel for holiday help (increase from 7 to 15)

- AW # 28. As funding is available, modify the law enforcement staffing in the following manner: For normal weekends, increase the number of rangers from 2 to 14. This would provide for both night and day patrols. Since the goal is to disperse some of the holiday use to the off weekends BLM needs to maintain adequate staffing throughout the season. In addition the adaptive use

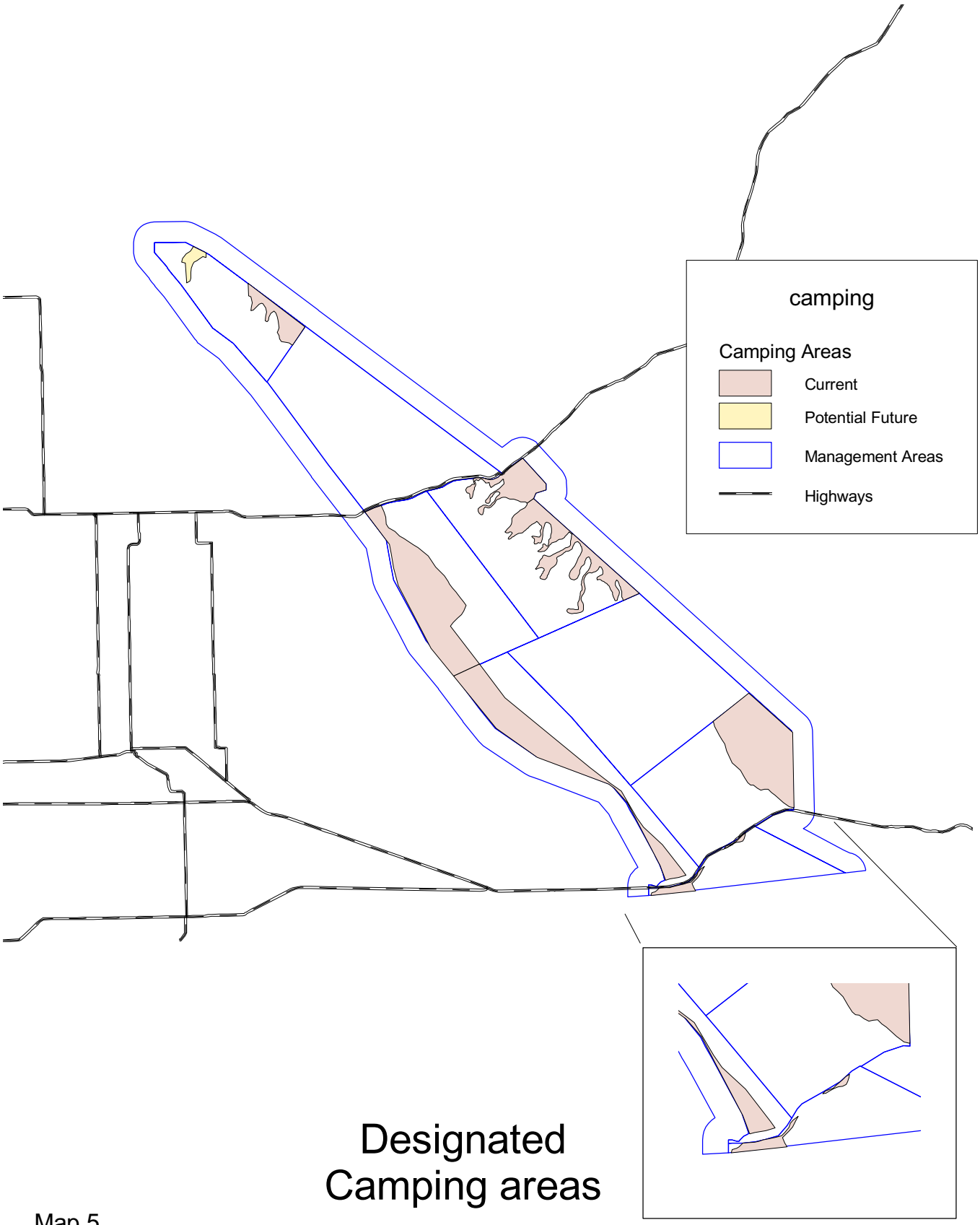
management area would need rangers assigned to it exclusively. On an interim basis all holiday weekends should be staffed as listed below, with the primary goal of modifying the current behavior patterns using the incident command system and decreasing the number of law enforcement officers as behavior patterns improve.

Halloween	75 - 125
Thanksgiving	150 - 200
New Year	75 - 100
Martin Luther King	50 - 75
Presidents Day	100 –1 50
Easter	50 – 100

- AW # 29. Ban alcohol outside of the designated camping areas. (See Map 5.) This would significantly reduce the level of alcohol related incidents within the ISDRA and aid in the overall enforcement of alcohol related violations.

- AW # 30. Establish a sun down to sun up closure of the 5 major OHV congregation points: Competition Hill north and south, Oldsmobile Hill, Test Hill, and Patton Valley. These areas traditionally attract rowdy and abusive crowds. The level of violence such as assaults on the public, safety personal, and employees have become unacceptable during the night time hours. Vandalism of property and resources in addition alcohol and drug related crime is presently at an unacceptable level. This management action will be reviewed prior to the 2006 dune season and periodically there after. The curfew may be removed if, based on the judgment of the BLM Rangers, violent, unlawful behavior has been significantly reduced from the level observed during the 2002 dune season. It may be restored after being removed, if, based on the judgment of the BLM Rangers, the level of violent, unlawful behavior increases. (See Map 6.)

- AW # 31. Increase law enforcement presence and enforcement throughout the ISDRA. Create a law enforcement co-operative team composed of BLM, Imperial County Sheriff, California Highway Patrol, city police, California State Parks, the U.S. Border Patrol and other law enforcement agencies (as available) to increase law enforcement and safety and to identify issues and solve situations (e.g. tracking repeat offenders, provide aircraft support, use of incident command for holiday weekends). Work with the county and federal court systems to develop alternate forms of punishment for violators. Community Service Programs in lieu of fines have been suggested such as weekend trash clean up within the ISDRA. This would also serve to educate the violators on the land ethics. Other suggestions are a web or classroom based land ethics course similar in scope to traffic school. Establish a compliance monitoring system to gather and assess historic and current law enforcement activity data to determine trends and correlations. Compliance and enforcement activities will be evaluated each year to determine their effectiveness and to assist in developing an ISDRA law

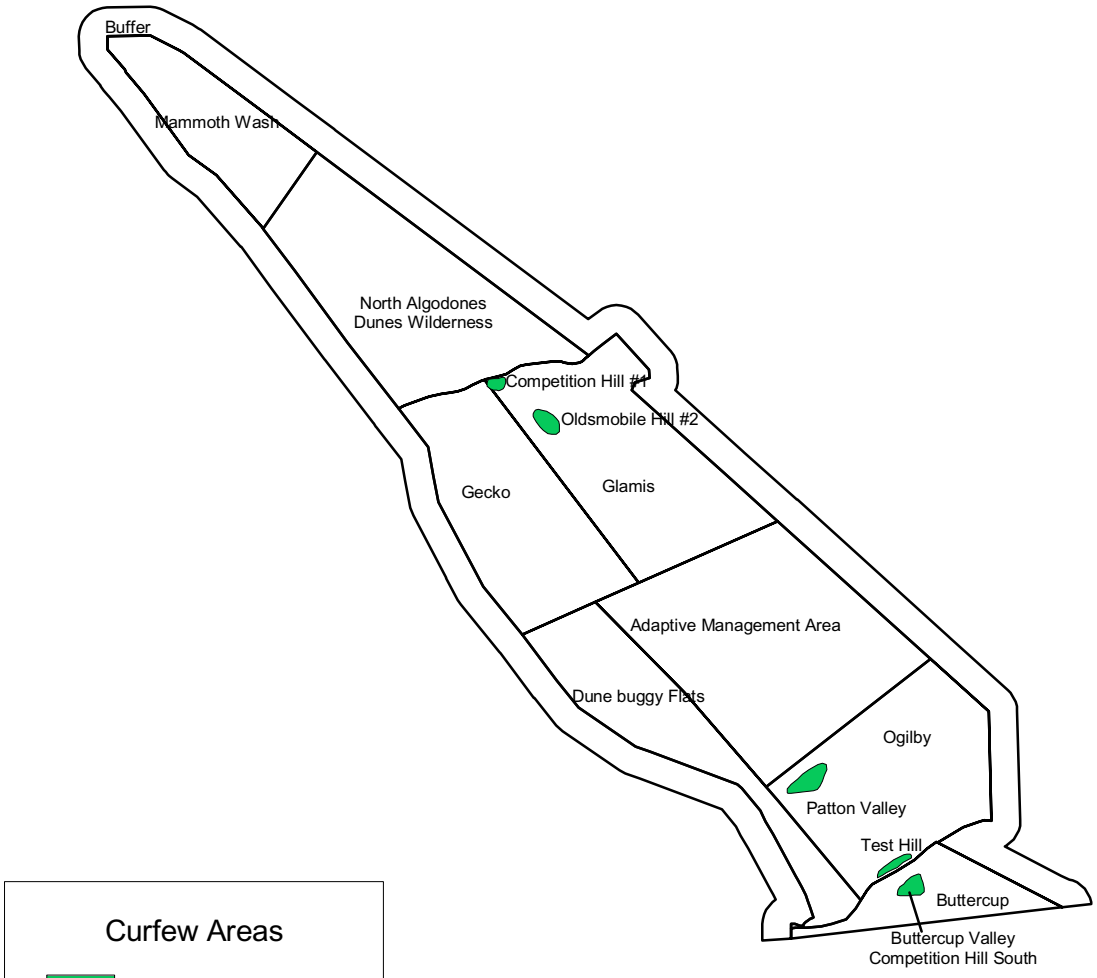


Designated Camping areas

Map 5

5 0 5 10 15 Miles

N



Curfew Areas

Curfew Areas

Management Areas

Map 6

Curfew Areas

5 0 5 10 Miles

N

enforcement plan combining conventional and innovative methods to provide the highest level of effective law enforcement.

- AW # 32. Use the "Law Enforcement" subcommittee formed from the ISDRA TRT to assess the current and potential issues and concerns expressed by the OHV community.

- AW # 33. Explore the feasibility of contracting with the National Park Service to provide additional law enforcement (subject to seasonal furlough) in order to meet peak season demands and safety response during normal and holiday weekends.

- AW # 34. As needed, based on air monitoring results, treat the following access roads for dust control to reduce the impact of OHV activities on air quality: Ted Kipf Road (from south of Glamis and north of the Adaptive Use Area), the Canal Road adjacent to the Coachella Canal, Wash Road adjacent to the Union Pacific Railroad (from south of Glamis to the Clyde Overcrossing), the entry road to Dune buggy Flats Campground.

- AW # 35. Install air meters for ozone and PM10 in the ISDRA. Implement the weather section of the monitoring plan in Appendix 1. Implement actions to mitigate for contributions to the non-attainment due to activities at the ISDRA.

- AW # 36. Continue with and refine the Incident Command system set in place for the busy holiday weekends. The IC system has greatly increased the effectiveness off the Law Enforcement and emergency medical service function. The plan allows for the increase or decrease of personnel needed for each event while at the same time maintaining the goals set forth in the event.

- AW # 37. Maintain, post and enforce the following speed limitations: 15 miles per hour near all sand highway segments near zones of recreational use concentration, 25 miles per hour on the Wash Road and the road entering Dune buggy Flats, maximum of 35 miles per hour on Gecko Road and Grays Well Road. Establish, post and enforce a 10 miles per hour speed limitation in Gecko Loop Campground, Key Hole Campground, Midway Campground and Buttercup Key Hole Camping Area.

Cultural Resources

- AW # 38. Nominate significant resources to the National Register of Historic Places, as appropriate.

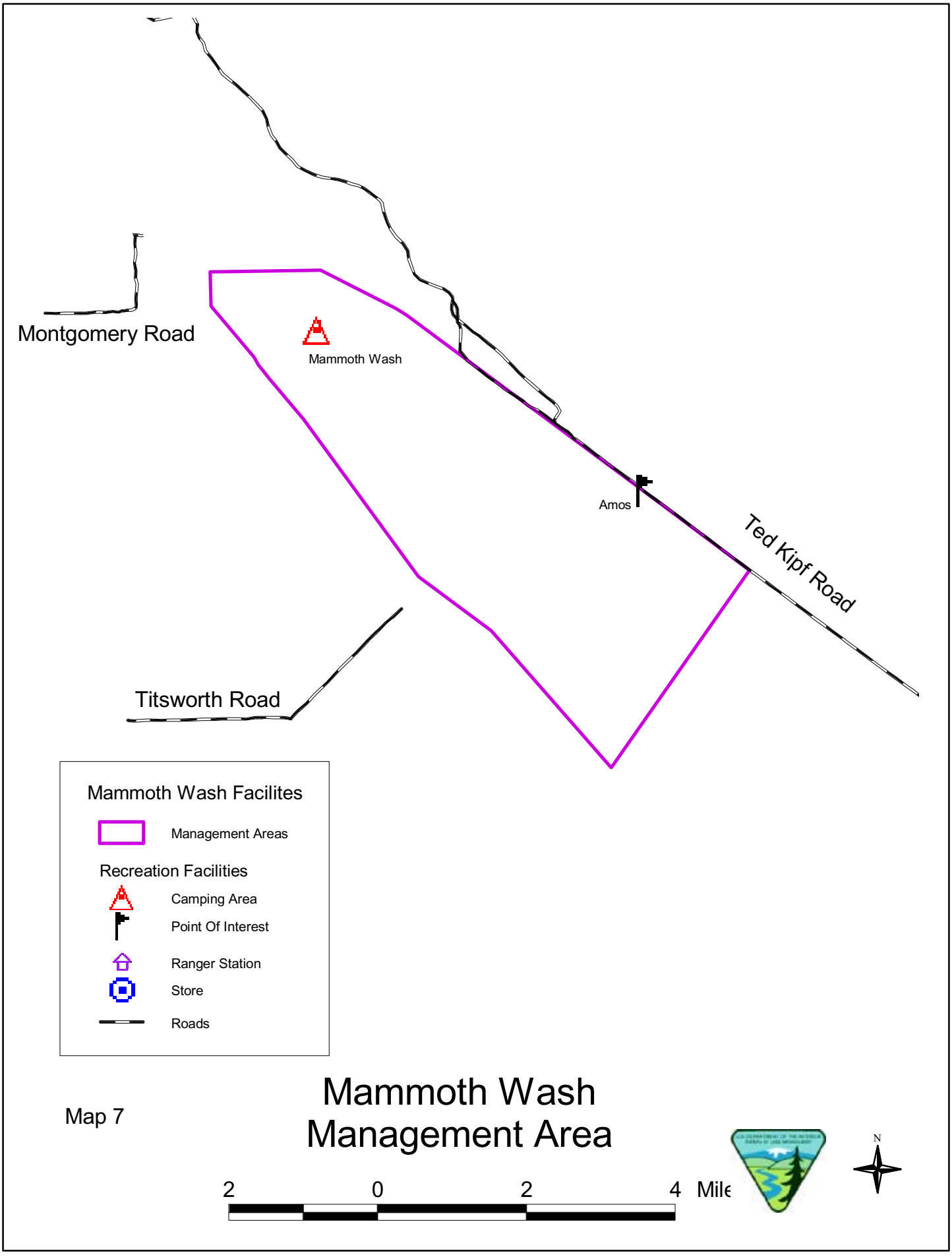
Existing Conditions, Desired Future Conditions, and Management Actions of the Management Areas (MAs)

In order to effectively manage the ISDRA under the ROS, it has been divided into nine management areas. These areas have been grouped together into management areas ranging from semi-primitive non-motorized to rural. These ROS classes allow the BLM to set reasonable guidelines to meet ROS objectives in each class. (See Map 4.)

Mammoth Wash Management (MM) Area

EXISTING CONDITION: The Mammoth Wash Management Area consists of about 8,105 acres of BLM managed land located in the extreme northwest end of the ISDRA. (See Map 7.) Within this management area is approximately 3,486 acres of privately owned land and approximately 447 acres of State owned land, which will not be managed by BLM. It is bordered on the north by the Mammoth Wash on the south by the North Algodones Dunes Wilderness, on the East by the Rail Road, on the west by the Coachella Canal. The Mammoth Management Area has been designated as Class I "Intensive" in the CDCA. This area is used for camping, hunting, OHVs, rights of way (see Appendix 2) and filming. This area uses a wildlife management technique called guzzlers to provide drinking water to wildlife. (Some of the privately owned property is used for agriculture.) However, the difficulty and remote access to the Mammoth Wash Management Area has severely restricted OHV recreation use in the area. While its remoteness serves as an attraction for some who desire a more semi-primitive motorized recreational opportunity, it does prevent full utilization of the Mammoth Wash Management Area. OHV recreation at Mammoth Wash is light with estimates of 10-15 groups utilizing the area on major holiday weekends. OHV recreational activity during the week is minimal, with many weekdays with no OHV visitation.

DESIRED CONDITION: The desired condition for the Mammoth Wash Management Area is to allow for OHV recreation with the emphasis on semi-primitive motorized recreation opportunity. Emphasis will be placed on conserving and protecting natural and cultural resources, including threatened and other sensitive plants and animals. Focus will be to allow OHV recreational opportunities for small groups and other individuals that seek solitude with relatively low concentrations of OHV use. The management focus will ensure that the area's semi-primitive characteristics remain intact. Protection of natural and cultural resources will be highlighted. Minimal restrictions will be placed on the groups that recreate in this Mammoth Wash Management Area. There will be no facilities or other developments recommended for the area. Visitors will be encouraged to practice good stewardship, responsible use of off-highway vehicles, and low-impact principles to all recreational activities. Habitat conservation and resource protection will be achieved through an aggressive outreach program that will increase the public's knowledge of the sensitive natural and cultural resources found in the management area. Visitor supply ranges would be established to provide for low concentrations of OHV use to retain the high quality semi-primitive characteristics of the area. Periodic modification to the visitor supply range will be determined through professional analysis resulting from data and


Montgomery Road
Mammoth Wash
Amos
Ted Kipf Road
Titsworth Road
Mammoth Wash Facilites
Management Areas
Recreation Facilities
Camping Area
Point Of Interest
Ranger Station
Store
Roads
Map 7
Mammoth Wash
Management Area
2 0 2 4 Mile
N

information compiled during ongoing resource and visitor satisfaction surveys, as well as data compiled from resource monitoring programs. Emphasis will be placed on responsible use of off-highway vehicles, and low-impact principles applicable to all recreational activities.

Access to the Mammoth Wash Management Area is via the Ted Kipf Road and the Glamis-Niland Road. No road improvements are planned or recommended to improve motorized access into Mammoth Wash. No facilities are planned or will be allowed in the Mammoth Wash Management Area. No commercial events will be authorized in the Mammoth Wash Management Area, except for photography or filming permits. No competitive events or activities would be authorized in the Mammoth Wash Management Area. Funding for the area will include irregular ranger patrols, recreation satisfaction survey, establishment of an environmental ethics program, and implementation of a biological resource monitoring program.

MANAGEMENT ACTIONS:

Access and Facilities

- MM # 1. Continue to work in cooperation with California Department of Fish and Game for the proper maintenance of the wildlife guzzlers.

North Algodones (NA) Dunes Wilderness Management Area

EXISTING CONDITION: The North Algodones Dunes Wilderness Area consists of approximately 27, 089 acres managed by BLM. (See Map 8.) Within this management area is approximately 406 acres of privately owned land and approximately 199 acres of State owned land, which will not be managed by BLM. Recreational activities in this area include photographic activities, sightseeing, walking, hiking, backpacking, camping, nature study, horseback riding, hunting, rights of way, and wildlife viewing. There are no fees to enter the site. No commercial uses are allowed. No use of motorized vehicles of any kind (OHVs, motorcycles, bicycles, hang gliders, motorized equipment, or motorboats) is allowed. No facilities are available. This area uses a wildlife management technique called guzzlers to provide drinking water to wildlife. Primitive camping is available. On both non-holiday and holiday weekends the level of use is low. No motorized access is allowed in this area, except for law enforcement activities (for example, activities related to apprehending trespassers and providing medical aid) and maintenance activities for example, signage maintenance, guzzler maintenance and boundary maintenance.

DESIRED CONDITION: This area is to be maintained as a wilderness. This area will be managed under the semi-private non-motorized ROS classification. A predominantly natural or natural-appearing environment of moderate to large size (generally larger than 2,500 acres) characterizes this setting. Interaction between users is low, but there is often evidence of other users. The area is managed with minimal and subtle on-site controls and restrictions. Motorized use is not permitted.

Limited motorized access into this area is allowed for law enforcement activities and for the maintenance of wildlife guzzlers. Occasionally others trespass into this area with motorized vehicles. The amount of motorized trespasses in this area should be reduced.

MANAGEMENT ACTIONS:

OHV/Recreation

- NA # 1. Conduct regular patrols of the boundaries to enforce laws related to motorized access of the wilderness.

- NA # 2. Continue coordination with the Border Patrol, and California Department of Fish and Game on legal motorized entry into the wilderness area. Cooperate with private land owners in the wilderness area.

Access and Facilities

- NA # 3. Continue to work in cooperation with California Department of Fish and Game for the proper maintenance of the wildlife guzzlers.

- NA # 4. Maintain or increase wilderness boundary signing.

Information and Interpretation Education

- NA # 5. Maintain the watchable wildlife site on the eastern boundary as a nature interpretive area.

Commercial Activities

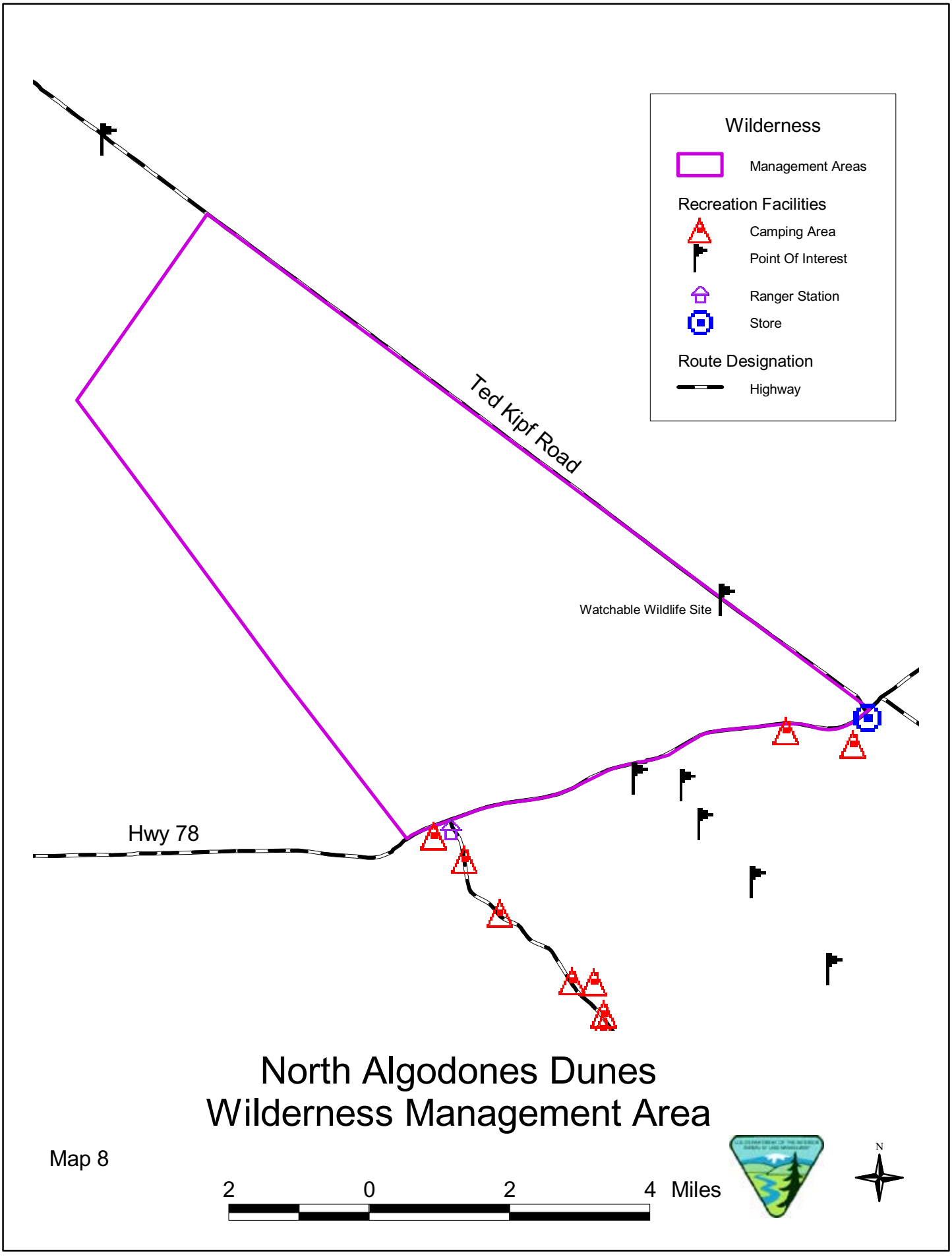
- NA # 6. No commercial activities will be permitted within the wilderness area, except those that enhance wilderness values.

Health and Safety

- NA # 7. The kiosk at the watchable wildlife site will include information on desert safety for hikers or equestrian visitors who venture into the wilderness area.

Gecko Management (GM) Area

EXISTING CONDITION: The Gecko Management Area consists of approximately 21,225 acres of land managed by BLM. (See Map 9.) Within this management area is approximately 673 acres of privately owned land, which will not be managed by BLM. The Gecko Management Area is located immediately east and west of Gecko Road. The Gecko Management Area includes Gecko Road, all the adjacent pads and campgrounds, and the Osborne Overlook area. This is the most developed management area in the

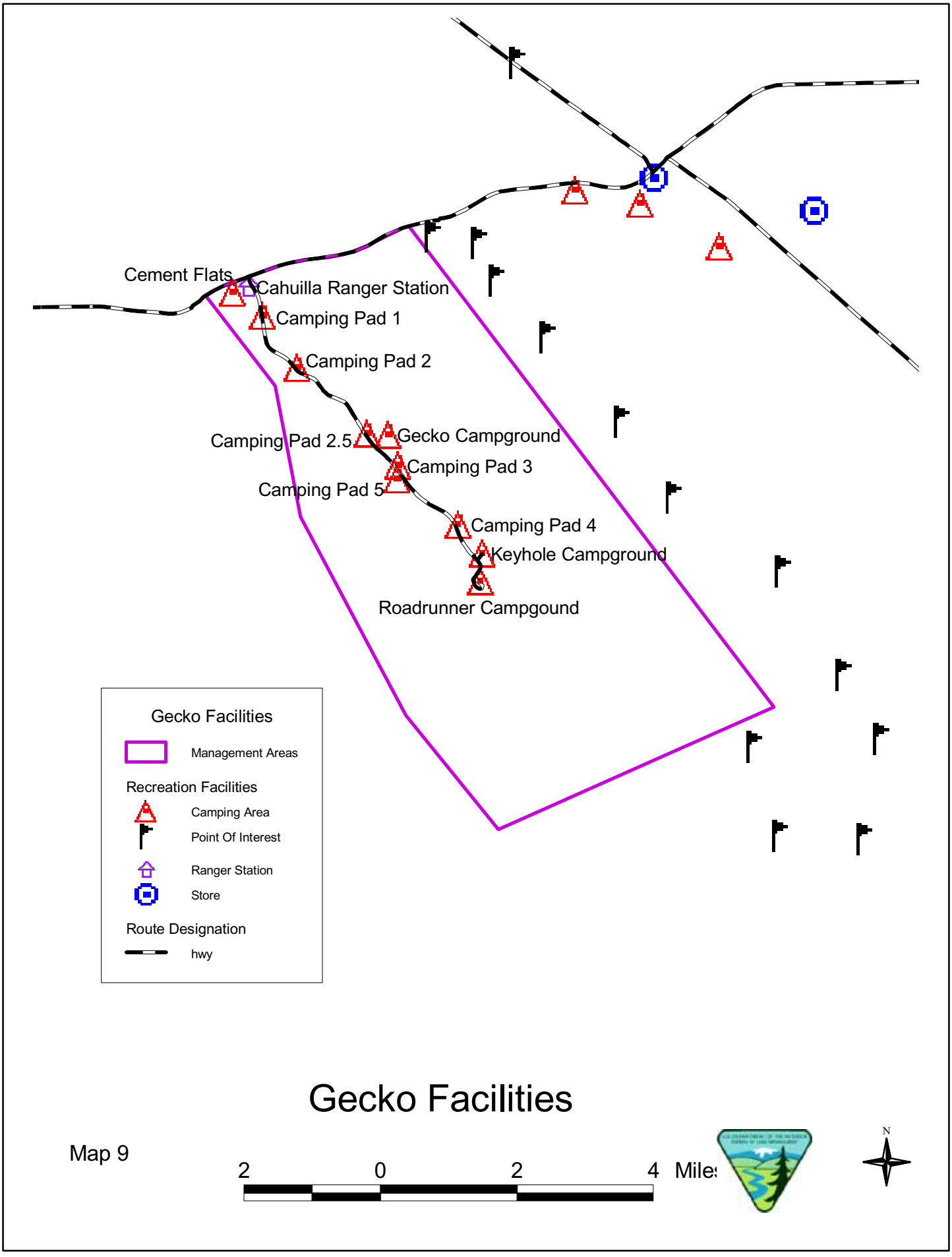


North Algodones Dunes Wilderness Management Area

Map 8

2 0 2 4 Miles

N



Gecko Facilities

Map 9

2 0 2 4 Miles

N

ISDRA. Cahuilla Ranger Station is located adjacent to Gecko Road just south of Highway 78. The station consists of a visitor area, medical room, break room, offices and employee restrooms all housed in a triple wide trailer. There are two single wide trailers that are used as housing for the on site EMT and law enforcement ranger. There is a storage shed for equipment and vehicles, several cargo containers, and a weather station. The entire area is fenced with a portion of the lot designated as a helipad. Cahuilla Ranger Station is the focal point of the entire ISDRA operations and is a designated location for visitors to seek assistance.

Along the eastern boundary of the Gecko management area and the western boundary of the Glamis Management Area are dunes that are considered by some to be the best OHV area in the ISDRA. The area consists of large and steep bowls that can be traversed from one to another by crossing over razor back ridges. OHVs can reach high speeds while the centrifugal force holds them to the face of the bowl as they drive around the bowl.

There are seven hard packed, BLM constructed, camping areas along Gecko Road. From north to south, they are named Cement Flats, Pad 1, Pad 2, Pad 2 ½, Pad 3, Pad 5, and Pad 4. This area provides 17 acres for camping. These areas are constructed with a geotextile material to provide a hard surface to stage or camp on near the sand. There are no other amenities at any of these sites.

There are three asphalt loop campgrounds that extend from Gecko Road. Gecko Campground consists of two main loops, totaling 41 acres of camping space. Roadrunner Campground is located at the end of Gecko Road and consists of an asphalt loop totaling 12 acres of camping space. Both of these campgrounds have trash facilities and pit toilets. The Keyhole campground is located just north of Roadrunner Campground and consists of one asphalt loop totaling one-half acre for camping area with no other amenities.

Osborne Overlook is located approximately two miles east of Gecko Road off of Highway 78. There is a short access road that leads to a rough hardened surface overlook. There is an information kiosk and post and cable fencing surround the edge of the surface. There are no other amenities in this area. Camping has historically been allowed in this area but recently, the area has been used as the incident command center for holiday operations due to its strategic location and available space.

One of the historical major OHV activities that occur in this management area is the impromptu sand drags that occur adjacent to Pad 1. During the holiday periods crowds gather in the late afternoon and early evening to watch OHVs compete against each other. During the busiest holidays, the crowds can grow to several thousand visitors. Law enforcement has been a major issue at the sand drags. Some of the issues that have caused problems are incidents involving alcohol and drugs, OHV safety violations, and a mob-like mentality.

DESIRED CONDITION: The desired condition for the Gecko Management Area is to be managed under the rural classification under the ROS. These facilities include roads,

campgrounds, toilets, trash stations, camping pads, overlooks, information kiosks, commercial vending, and a ranger station. A substantially modified natural environment characterizes this setting. Resources are modified to enhance specific recreation activities. Sights and sounds of humans are readily evident and interactions between visitors are moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities for intensified motorized use and camping are available.

MANAGEMENT ACTIONS:

OHV/Recreation

- GM # 1. Eliminate camping between the canals and north of Highway 78. This will reduce impacts on the Wilderness to the east and reduce impacts to the limited use area to the west.

- GM # 2. Increase the amount of camping pad space by 15 acres (60 campsites) on Gecko Road to encourage the current dispersed use within the management area to these developed areas.

- GM # 3. Utilize camping area between the canals south of Highway 78 as an overflow area when supply limits are enforced on Gecko Road.

- GM # 4. Continue the use of volunteer and nonprofit clean-up efforts.

- GM # 5. Develop a pilot reservation program in Roadrunner Campground to test the feasibility, visitor satisfaction, and resources needed to manage a reservation program. The price structure will be determined by competitive bidding for sites or a fee structure based on appraisal. The success of this pilot program and visitor satisfaction surveys will determine if the program will cease, continue or expand to other areas on Gecko Road or in the Buttercup Management Area.

Access and Facilities

- GM # 6. Utilize a law enforcement task force for traffic control on Gecko Road and at the intersection of Gecko Road and Highway 78 during peak traffic hours.

- GM # 7. Construct fee entry / traffic control area on Gecko Road.

- GM # 8. Close Osborne Overlook to overnight camping to allow this location to become a day use area and to accommodate law enforcement facilities. (Since Osborne Outlook is used for law enforcement activities and is the preferred location for emergency helicopter evacuations, overnight campers have been asked to relocate in the past. This change is designation will reduce the need for overnight campers to relocate during emergency situations.)

- GM # 9. Construct a ranger station to meet the needs of the public and the staff at Osborne Overlook. The ranger station will be designed with all other facilities behind the main building and out of view of the general public. The station is to include, but not limited to, indoor and outdoor interpretive areas, an emergency medical service room, break room, meeting room, security lockers, parking area, water well, septic system, storage shed, a public water fountain, two public pit toilets, and public picnic tables with shade armadas.

- GM # 10. Construct an interagency law enforcement facility at Osborne Overlook to meet the needs of the staff. This is to include, but not limited to a dispatch room, meeting room, break room, office space, booking space, interview rooms, intoxilizer room, holding facility, parking area, helipad, storage shed, and a security sally port. Resurface and maintain Osborne Overlook. Construct a parking lot at the base of Osborne Overlook.

- GM # 11. Construct maintenance shed large enough to accommodate the needs of the staff and equipment at the current ranger station.

- GM # 12. Construct a fuel station at the current ranger station for BLM use.

- GM # 13. Replace the current residence trailers with permanent housing. These facilities will house one on-site emergency medical service person and one on-site law enforcement ranger. The residences will be as removed from the government business buildings and from public view as feasible.

- GM # 14. Remove the current ranger station trailer.

- GM # 15. Construct additional housing and parking facilities for the ISDRA staff at the site of the current ranger station.

Information and Interpretation Education

- GM # 16. Install outdoor information and interpretation kiosks and panels at Osborne Overlook.

- GM # 17. Install an interpretive area in the station at Osborn Overlook.

- GM # 18. Install information and interpretive kiosks near the public phones on Gecko Road, Gecko Campground, and Roadrunner Campground.

Health and Safety

- GM # 19. Have one emergency medical service rescue buggy to respond to incidents in the Gecko and Glamis Management Areas.

- GM #20. Work with the Imperial County to have the contracted emergency medical service provider increase services in the ISDRA.

Glamis Management (GLM) Area

EXISTING CONDITION: The Glamis Flats Area is located south of Highway 78 and west of the railroad near the Glamis Beach Store. The area adjacent to Highway 78 and the Glamis store is flat, sandy and is a favorite camping spot for thousands of dunes enthusiasts. The total size of the management area is 24,041 acres of BLM managed land. Approximately 2000 acres are suitable for camping. (See Map 10.) Within this management area is approximately 117 acres of privately owned land and approximately 259 acres of State owned land, which will not be managed by BLM. This area is used for camping, OHVs, and commercial vending. It also contains rights of way use (see Appendix 2). The flats area offers a unique recreational experience for the dunes enthusiast. The management area consists of the ROS category roaded natural. The variety of recreational opportunities for the general public makes the Glamis Flats Management Area very important to the ISDRA culture.

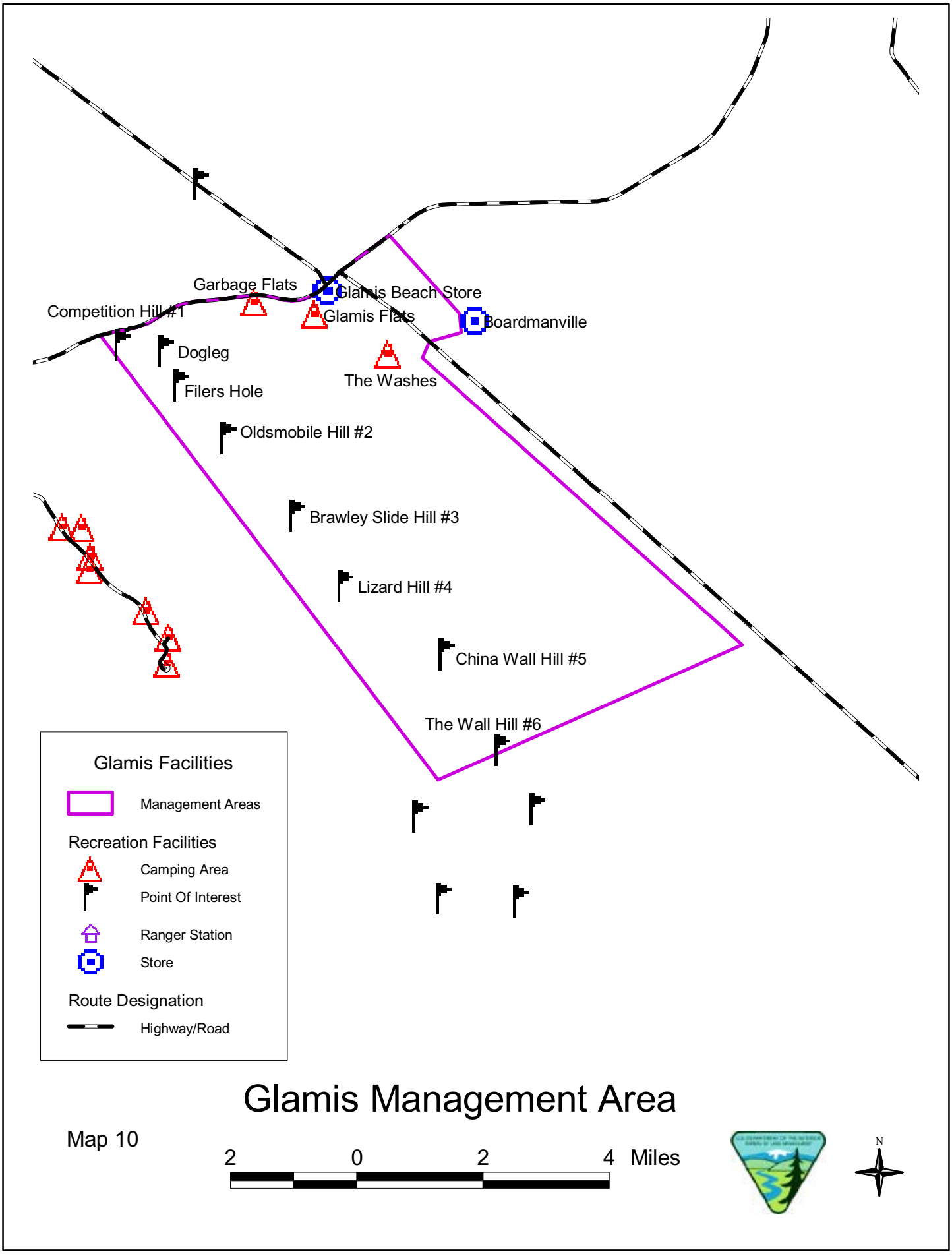
Glamis Flats has become the main area for visitors to purchase goods and services from vendors and local private businesses. The permitted vendors have historically used a specific area and pattern to setup for sales. This area has become known as "Vendor Row" or "The Mall". Approximately 60 vendors set up and sell products and services that meet the needs of the OHV enthusiasts. During peak periods, this area can become thick with dust and experience intensive OHV traffic.

Camping in this management area takes place in the natural flat hard-surface pockets and up to the fringes of the dunes. Camping occurs in large groups that form "wagon circles" of recreational vehicles that creates an atmosphere for visiting with friends.

The areas east of the Glamis Store has been historically used as a camping area for access to the ISDRA. This area was not included into the fee boundary and visitation has increased since the implementation of the fee demonstration program in 1997. Visitors also prefer this area to escape the dust generated from the high visitation in other areas, the accessibility to local businesses, and the open space for young OHV enthusiasts that is away from the crowds.

Competition Hill

Competition Hill offers a unique challenge to BLM staff. The challenge is due to the terrain, high visitation at the base of the area, and the perception of lawlessness that derives from a mob-like mentality. Visitors arrive at the base of the hill on OHVs, Sports Utility Vehicles (SUVs), and pick-up trucks. This phenomenon occurs on the busy holidays on Friday and Saturday nights. Watching how equipment and drivers perform as the vehicles race up and down the hill provides entertainment. On lookers enjoy packed in refreshments as they watch the activity on the hill. Illegal activities occurring at the base of Competition Hill are: assaults, under age drinking, illegal drug use, minors



Glamis Management Area

Map 10

2 0 2 4 Miles

N

in possession of alcohol, burning of hazardous materials, un-permitted events (such as rave type parties), public nudity and public sex acts.

These activities have created a hostile environment for the law abiding dunes enthusiast, as well as BLM staff that provide services to recreational visitors. Over the past years BLM staff have entered the base of Competition Hill and been surrounded and out numbered by the visitors. Currently, BLM staff will not enter the area to provide law enforcement or emergency medical service at night without significant backup to ensure their own safety. At night many veteran enthusiasts stay away from Competition Hill for their own safety.

Oldsmobile Hill

Oldsmobile Hill area reaches peak visitation on holiday weekends during mid-day through late afternoon. The area becomes busy with activity, with row after row of OHVs, SUVs, and pick up trucks. Enjoyment is derived by watching how equipment can perform as it races up the hill. The onlookers at the bottom of the hill enjoy refreshments they have packed in and watch the parade of vehicles that pass by. Oldsmobile Hill has a long history of uses dating back to the early 1960's.

DESIRED CONDITION: The desired condition of the Glamis Flats Management Area is to be managed under the roaded natural classification of the ROS spectrum. A predominantly natural appearing environment characterizes the roaded natural classification. Facilities are designed and constructed to accommodate conventional motorized use. Moderate sights and sounds of humans exist and interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification is evident, but in harmony with the natural environment. Roaded natural settings may support OHV use in those portions of the ISDRA where it lies between access roads or camping facilities.

MANAGEMENT ACTIONS:

Access and Facilities

- GLM # 1. Construct pit toilets in the Glamis Flats and Washes areas to meet the sanitary needs of the visitors.

- GLM # 2. Allow camping in the area east of Glamis and the railroad tracks. This area is already highly impacted from mining and recreational use.

Health and Safety

- GLM # 3. Grade the wash road regularly.

Adaptive Management (AM) Area

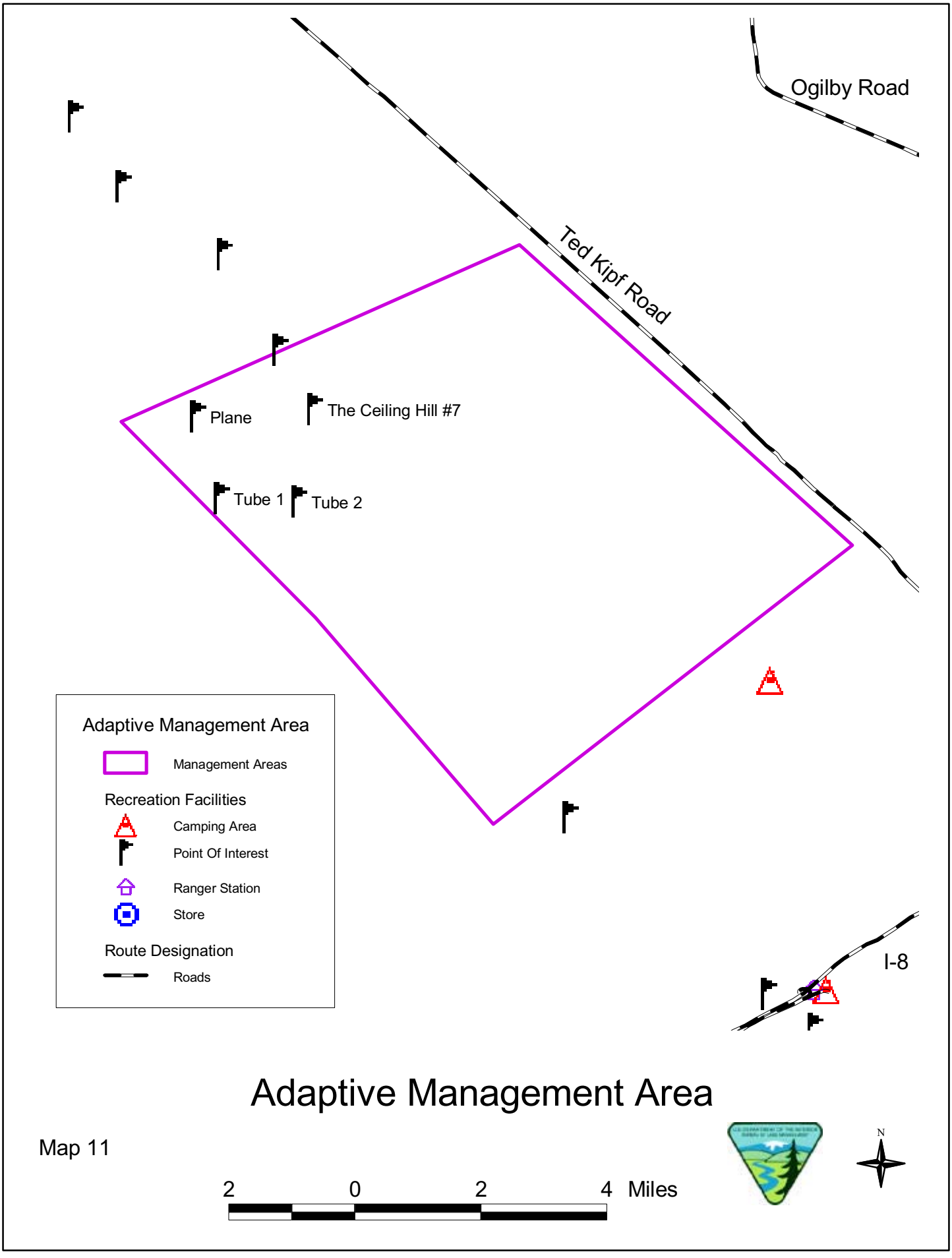
EXISTING CONDITION: The Adaptive Management Area contains approximately 33,289 acres of BLM managed land. (See Map 11.) Within this management area is approximately 663 acres of privately owned land, which will not be managed by BLM. The adaptive management area is used mainly for OHV activities, although there is also rights of way use (see Appendix 2). It has the most widely diverse habitat in the ISDRA. Historic recreational use of the area is low to moderate and it provides opportunities for semi-primitive motorized recreation opportunities and experiences. Total visitation is not known, however, anecdotal information suggests that visitor use is low compared to the remainder of the ISDRA. Visitors come in small groups of vehicles and take part in OHV recreation throughout the ISDRA, sand dune hill climbing, and navigation challenges. OHV fuel capacity limits the normal length of stay for these groups. The experience is more nature based with small group or families exploring the area rather than large group socialization events or OHV power and speed challenges.

DESIRED CONDITION: The Adaptive Management Area will be managed in a manner that provides recreational opportunities while allowing for the conservation of habitat and plants and species of concern.

This management area will be managed using principles of adaptive management. Adaptive management is a process of implementing policy decisions as scientifically driven management experiments that test predictions and assumptions in management plans, using the resulting information to improve the plans. It is a mechanism for integrating scientific knowledge and experience for the purpose of understanding and managing natural systems such as the ISDRA ecosystem.

This process allows for the continuous improvement of management policies and practices based on previous outcomes of operational programs. Its most effective form, "active" adaptive management, employs management programs that are designed to experimentally compare selected policies or practices, by evaluating alternative hypotheses about the system being managed (Nyberg, 1998). Adaptive management is a way for managers to proceed responsibly in the face of multiple uncertainties. A simple, effective, six-step process for the ISDRA adaptive management program has been used in developing management actions in this Draft RAMP.

- **Problem assessment**: This involves defining the scope of the management problem as developed through evaluation of issues, concerns, opportunities, desired future conditions, and identification of additional data needs.
- **Design**: This involves the design of management actions to further understand and quantify impacts, thresholds, visitor supply, and levels of acceptable change. This step involves designing a management plan / monitoring program that will provide reliable feedback about the effectiveness of planned actions to meet management objectives. This step should yield information to fill the gaps in understanding (e.g., effects of OHV use on Peirson's milk-vetch) identified during problem assessment.



Adaptive Management Area

Map 11

2 0 2 4 Miles

N

- **Implementation:** Management actions are implemented to generate knowledge for continuing analysis and evaluation.
- **Monitoring**: In this step, key response indicators are monitored to determine the effectiveness of the management actions.
- **Evaluation:** This involves an analysis of the management outcome, in light of original management objectives.
- **Adjustment:** This is a reassessment of the challenges and an adjustment of management objectives and planned actions, in light of new data developed.

Habitat conservation will be achieved through the classification of a limited access interior dune adaptive management area, characterized by contiguous east-west sensitive species habitat. The adaptive use area would be accessed via permit. Visitor supply ranges would be established to provide a high quality day-use semi-primitive motorized recreation opportunity for ATV and dune buggy enthusiasts, with special chances for small groups of family and friends to enjoy a sense of remoteness and tranquility, the sights and sounds of nature, to learn about sand dune ecology, to explore, to practice good stewardship, and feel inspired by the awe of the ISDRA. This area provides nature-based opportunities where the focus is on experiencing the natural resource and not the power, speed, or other attributes of the motorized conveyance. Periodic modification to the visitor supply range would be determined through professional analysis resulting from data and information compiled during ongoing resource and visitor satisfaction surveys and monitoring programs.

The management objective in the Adaptive Management Area is to provide for high quality, unique world-class day-use semi-primitive motorized recreation opportunity for ATV, motorcycle, truck and dune buggy activities. The recreation visitor supply for the Adaptive Management Area would be 75 groups (no more than 525 vehicles) per day during the visitation season. This visitor supply was developed to protect the natural resources in the Adaptive Management Area and also to allow a semi-private motorized recreation opportunity. During the first year, visitor data would be collected along with biological data and adjustments to the number of visitors would be made accordingly on a yearly basis.

Access to the Adaptive Management Area would be by permit only, except for administrative and law enforcement purposes. In order to obtain a permit, the driver of each vehicle must pass a resource conservation exam. When requesting a permit, each vehicle and driver must be identified. One permit would be valid for one group of up to 7 vehicles for a period of up to seven days. A day use period is defined as a period from sunrise to sunset. Reservations and/or multiple reservations could be made in advance. For the first year all permits would be available on site in order to assess visitor numbers and patterns. In future years, a maximum of 70% of all permits would be issued by reservation and 30% would be issued in person at the Cahuilla Ranger Station. Should reservations not meet the 70% maximum, the balance of permits will be made available at the Cahuilla Ranger Station. Reservations may be made for one to seven days based on availability. Permittees making reservations would receive all materials, including a permit, through the mail. A permit would not be authorized until all signatures and fees

have been completed. Each permit issued would include printed environmental education material and a test on sensitive plant and animal species, other sensitive resources, safety materials, and general stipulations for use of the area. A permit holder must sign that he/she has read and understands the printed material and stipulations. A fee would be charged for each permit issued. The fee would be based on cost recovery for the administration of this permit and adaptive area. Cost recovery would be based on, but not limited to, the cost of printing environmental education material related to sensitive species within the Adaptive Management Area, compliance, signing and monitoring. A business plan would be prepared to determine cost recovery. Each vehicle within a group that is issued a permit would be provided a safety flag that is easily identifiable by BLM from the ground and air. Vehicles within the Adaptive Management Area without a permit and BLM issued safety flag would be issued a citation for being in the area without authorization. Permit holders would be allowed to access the Adaptive Management Area through the boundary, except not through the microphyll woodlands on the east side of the management area.

To measure the success of the Adaptive Management Area, BLM will establish a biological monitoring program in accordance with Chapter IV. BLM will establish a visitor satisfaction and demand survey to determine if visitor satisfaction and demand are being met within the boundary area. No facilities will be allowed in the Adaptive Management Area. Interpretive and informational signs may be allowed in conformance with the objectives of the Adaptive Management Area. No commercial services and/or competitive events will be allowed in the Adaptive Management Area.

MANAGEMENT ACTIONS:

Access and Facilities

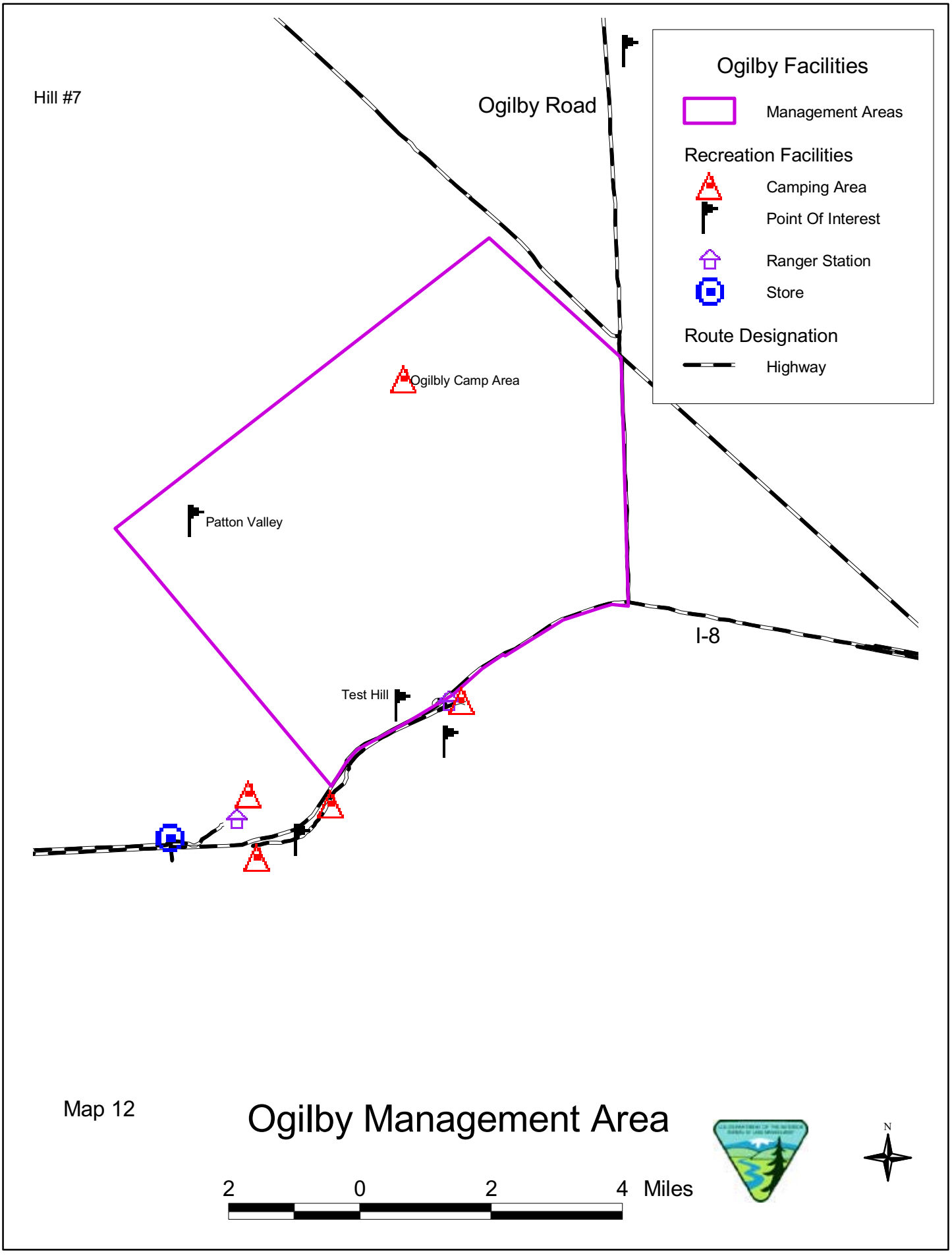
- AM # 1. Develop, implement, monitor, revise as necessary, sign, and enforce the permit program.

Information and Interpretation Education

- AM # 2. Develop the educational program, including a resource conservation exam, to accompany the permit program.

Ogilby Management (OM) Area

EXISTING CONDITION: The Ogilby Management Area consists of approximately 21,710 acres managed by BLM. (See Map 12.) Within this management area is approximately 1,567 acres of privately owned land, which will not be managed by BLM. This area is used for camping, OHVs and rights of way (see Appendix 2). It is located in the southeast corner of the ISDRA just north of Interstate 8. It is bordered on the North by Pilot Knob Mesa, on the south by Interstate 8, on the East by the Ogilby and Ted Kipf Roads, and on the west by Patton Valley. The Ogilby Management Area has been


Hill #7
Ogilby Road
Ogilby Facilities
Management Areas
Recreation Facilities
Camping Area
Point Of Interest
Ranger Station
Store
Route Designation
Highway
Ogilbly Camp Area
Patton Valley
I-8
Test Hill
Map 12
Ogilby Management Area
2 0 2 4 Miles
N

designated as Multiple-use Class L "Limited" use area in the CDCA Plan. The management area was designated Class L because of the Pilot Knob Mesa, an important area due to sensitive wildlife, plant and cultural resources. The Ogilby Management Area is a popular OHV area for families and groups that seek a roaded natural recreational opportunity, and camping at a site away from the intensively used areas of the ISDRA.

OHV recreational use within the management area is light to intense. Camping in the Olgilby Management Area activity during weekdays is minimal, with many weekdays during the use season (October-April) with negligible OHV or other recreational use visitation. The Ogilby Camp Area near the Microwave Relay Station is the most important camping area within the management area. This primitive camp is a popular site utilized by families and groups that prefer camping in an area that receive low to moderate OHV recreational activity. For the past 20 years, habitat protection, cultural resource protection and resource conservation has been the management focus. Emphasis has been placed on protection of sensitive natural, cultural, scenic, ecological resources, with emphasis on protection of habitat for threatened and sensitive species.

Desired Condition: The desired condition for the Ogilby Management Area is to allow for OHV recreation managed under the roaded natural classification of the ROS spectrum. A predominantly natural appearing environment characterizes the roaded natural classification. Facilities are designed and constructed to accommodate conventional motorized use. Moderate sights and sounds of humans exist and interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification is evident, but in harmony with the natural environment. Roaded natural settings may support OHV use in those portions of the ISDRA where it lies between access roads or camping facilities

Emphasis will be placed on protection of natural, cultural, scenic, and ecological resources, including threatened and endangered species. The management focus will be to continue to allow for OHV recreational opportunities for families and other groups that seek an area within the ISDRA that will offer low to intense concentration of OHV recreation activity. In addition, management will give emphasis and place high priority on protection of natural and cultural resources within the management area. Minimal restrictions will be placed on the groups that recreate within the management area. There will be no recreational facilities or other developments planned within the management area.

Visitors will be encouraged to practice good stewardship, responsible use of off-highway vehicles, and low-impact principles for all recreational activities. Habitat conservation and resource protection will be achieved through an aggressive outreach program that will increase the public's knowledge of the sensitive natural and cultural resources found within the management area. Outreach will also focus on increasing the public's knowledge and understanding of land use and other management issues within the ISDRA, especially protection of threatened and sensitive plants and animal species.

Vehicle access into the management area is via the Ogilby Road and Ted Kipf Road and the Microwave Relay Station access road. There will be no road improvements planned that will increase two-wheel drive motorized vehicle access into the management area. Visitor supply will be encouraged to provide for low concentrations of OHV use to retain the semi-primitive characteristics of the area. Annual monitoring of the site will be conducted to ensure that the area's semi-primitive characteristics are not being compromised. In addition, annual visitation surveys will be conducted to assess the visitor satisfaction with the management of the area. Annual resource monitoring and other studies will be conducted to ensure the area's sensitive natural, scenic, ecological and cultural resource values are protected.

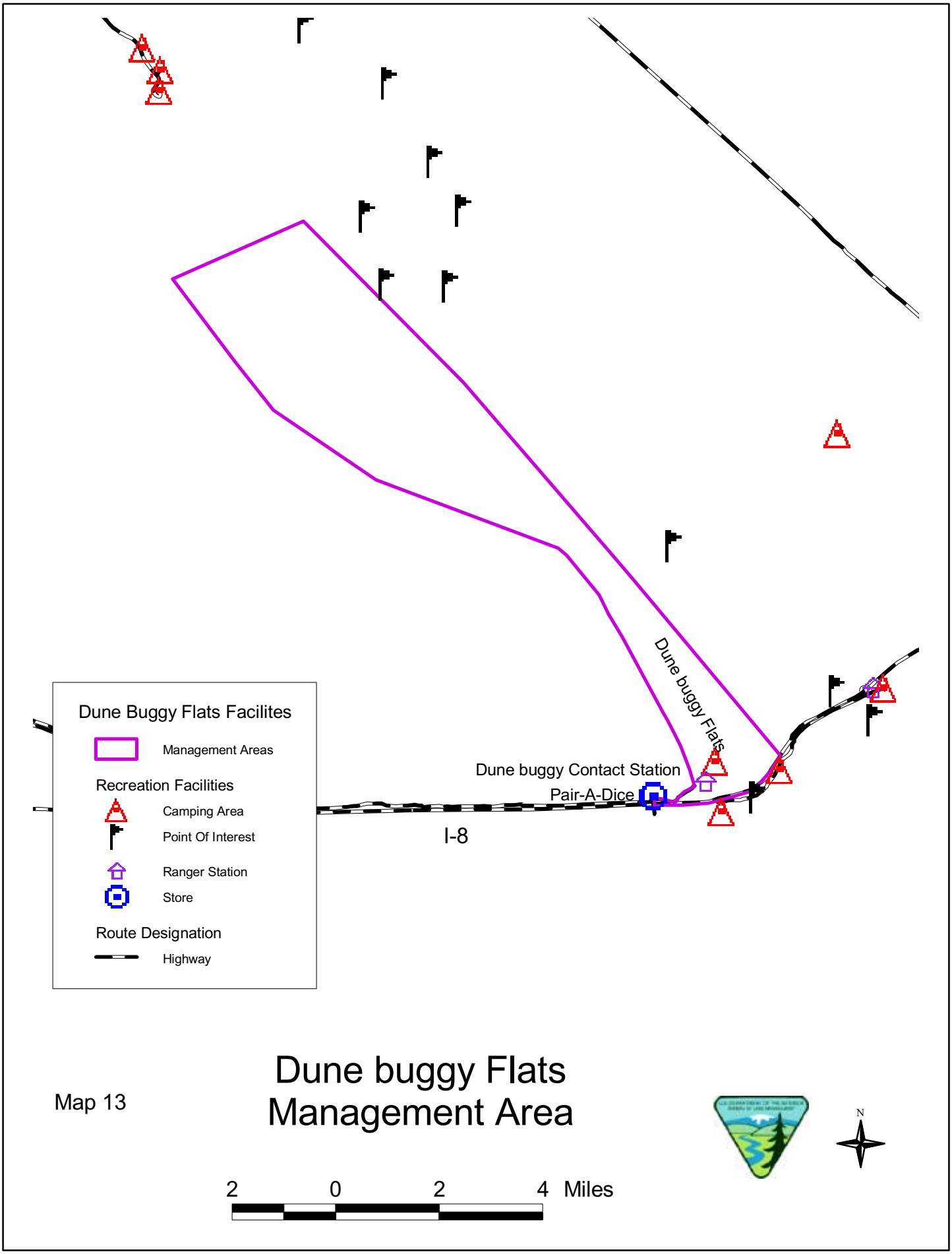
Developed campgrounds and other recreational facilities will not be constructed within the management area. Special Recreation Permits will not be issued or authorized within the management area. Commercial events will not be authorized, except photography or commercial filming permits within the management area. Competitive OHV events or other competitive events will not be authorized within the management area. Camping will be authorized for up to 14 days. Long-term camping within the management area will be prohibited. Discourage encroachment of intensive recreation activity from adjacent Multiple-use Class I "Intensive" use area identified in the CDCA Plan.

Implementation of the Recreation Fee Demonstration Program should include the entire project area, including the Ogilby Camp Area.

MANAGEMENT ACTION: none anticipated, other than the ISDRA –Wide actions.

Dune buggy Flats Management (DM) Area

EXISTING CONDITION: The Dune buggy Flats Management Area is located north of Interstate 8 along the western border of the planning area. This area contains approximately 16,658 acres of land managed by BLM. (See Map 13.) Within this management area is approximately 37 acres of privately owned land, which will not be managed by BLM. This area is used for camping, OHVs, commercial vending and rights of way (see Appendix 2). The Dune buggy flats area provides open dispersed camping in a hard packed flat area. The main area is bordered on two sides by irrigation canals. This area has seen an increased level of visitation and activity since the implementation of the fee program. This area is accessed from the Gordon's Well exit off of Interstate 8. The majority of the camping occurs east of the New Coachella Canal. The area west of the canal and within the Area of Critical Environmental Concern was closed to camping in 2001 as mitigation for the construction of the Herman Schneider Memorial Bridge. This bridge created a safe and legal route of travel for OHVs between the Buttercup and Dune buggy Flats Management Areas. Within the last five years a new private business has been established adjacent to and west of the Area of Critical Environmental Concern. This business, "Pair-A-Dice", provides miscellaneous OHV parts and an indoor and outdoor restaurant. Since its establishment it has drawn large crowds of patrons from the OHV community.



Map 13

Dune buggy Flats Management Area

DESIRED CONDITION: The desired condition of the Dune buggy Flats Management Area is for it to be managed under the roaded natural classification of the ROS spectrum. A predominantly natural appearing environment characterizes the roaded natural classification. Facilities are designed and constructed to accommodate conventional motorized use. Moderate sights and sounds of humans exist and interaction between users may be low to moderate, but with evidence of other users prevalent. Resource modification is evident, but in harmony with the natural environment. Roaded natural settings may support OHV use in those portions of the ISDRA where it lies between access roads or camping facilities

MANAGEMENT ACTIONS:

Access and Facilities

- DM # 1. Construct pit toilets in the Dune buggy Flats Management Area to meet the sanitary needs of the visitors.

Health and Safety

- DM # 2. Grade the entrance road regularly.

Buttercup Management (BM) Area

EXISTING CONDITION: The Buttercup Management Area is located south of Interstate 8 to the US / Mexico Border. This area contains approximately 7,842 acres. (See Map 14.) This area is used for camping, OHVs, site seeing, commercial vending, education, filming and rights of way. Camping occurs along many points of Greys Well Road, the main access road that runs parallel to Interstate 8. The main camping areas in this management area are the Keyhole, near the Plank Road, Midway Campground, and Greys Well. Since the completion of the Herman Schneider Memorial Bridge, camping has started to increase near the west end of Greys Well Road. All of the above sites have pit toilets, trash dumpsters, and hard packed camping space for camping and OHV access. There is an information kiosk, phone, and fee machines in the campground area near the intersection of Greys Well Road and the road to the keyhole.

There are many U.S. - Mexico border issues in this management area. The area is patrolled by the U.S. Border Patrol 24 hours a day, seven days a week. Some of the illegal activity entails illegal border crossings and smuggling of goods and contraband.

The major OHV destination point in this management area is Buttercup Valley Competition Hill. This area is easily accessible by a sand road from the Keyhole area that leads to hard surface valley floor. On the north end of the valley, OHV enthusiasts use the steep leeward side of the dune for challenge and competition for man and machine. Crowds often gather during the afternoon and increase in size during the night.

The Plank Road Historical Site lies just south of Greys Well Road and approximately midway between the ends of the road. There is a portion of the road that is protected with fencing and there are several interpretive panels. The Plank Road is a destination site for tourists and passing motorists. Two other sites have been identified in Buttercup Valley but neither was determined to be eligible to be registered on the National Register of Historic Places. A recent cultural resource Class III inventory in the western half of the valley suggests there is little potential for historic properties in that area. There is, however, potential for significant resources at two other areas.

This area has substantial visual and audible impacts from development. The Interstate 8 freeway area has been designated as a utility corridor. As such, there have been several linear developments along this route. Some of these developments include high-tension power lines, telephone poles, border fencing along the freeway, irrigation canals, towers, roads and the freeway.

DESIRED CONDITION: The desired condition for the Buttercup Management Area is to be managed under the rural classification under the ROS. These facilities include roads, campgrounds, toilets, trash stations, camping pads, overlooks, information kiosks, commercial vending, interpretive area, and a ranger station. A substantially modified natural environment characterizes this setting. Resources are modified to enhance specific recreation activities. Sights and sounds of humans are readily evident and interactions between visitors are moderate to high. A considerable number of facilities are designed for use by a large number of people. Facilities for intensified motorized use and camping are available.

MANAGEMENT ACTIONS:

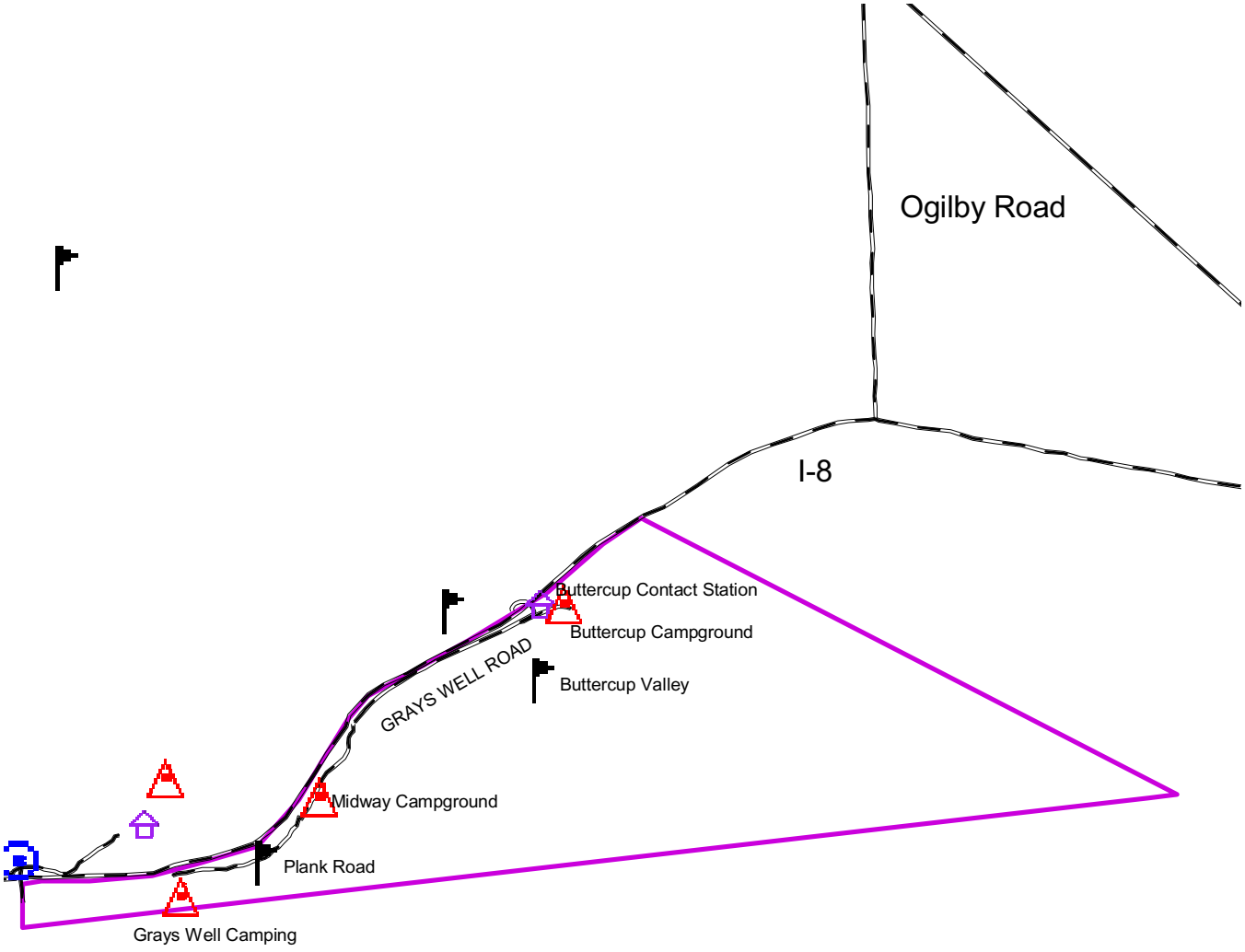
OHV/Recreation

- BM # 1. Designate campsites if deemed feasible by the pilot program in the Gecko Management Area.

Access and Facilities

- BM # 2. Construct a semi- permanent ranger station to meet the needs of the public and the staff in the Buttercup Management Area at the site of the current holiday station trailer. The station is to include, but not limited to, an emergency medical service room, toilets, break room, security lockers, water well, parking area, septic system, and storage area.

- BM # 3. Construct a separate semi-permanent interagency law enforcement facility adjacent to the ranger station to meet the needs of the staff. This is to include, but not limited to office space, booking space, interview rooms, intoxilizer room, holding facility, parking area, helipad, and a storage area.



Buttercup Facilites

Management Areas

Recreation Facilities

Camping Area

Point Of Interest

Ranger Station

Store

Highways

Buttercup Management Area

Map 14

1 0 1 2 Miles

N

Information and Interpretation Education

- BM # 4. Designate an interpretive area to educate the public about sensitive plants and other resource values adjacent to Greys Well Road that will be closed to OHV use and camping. There will be an associated parking area and facilities associated with this site as listed in BM # 8. The parking area will contain an informational an interpretive kiosk.

- BM # 5. Repair the fencing around the plank road to similar fencing used by the Border Patrol. This type of fencing is strong enough to endure multiple impacts by vehicles dashing across the border and will protect the historic values of this site.

- BM # 6. Repair and update all plank road exhibits to meet or exceed universal design and comply with all disability regulations and guidelines.

- BM # 7. Work cooperatively with the Border Patrol on a brochure that interprets the dangers of the border area and illegal border crossings on OHVs.

Commercial Activities

- BM # 8. Designate a bus parking area on Greys Well Road. This parking area will be built in conjunction with the interpretive area listed in BM # 4. The facility will have two pit toilets, and picnic tables with shade ramadas.

- BM # 9. Construct a vendor area and sites.

Buffer Zone Management (BZM) Area

(Outside ISDRA recreational boundary but within the planning area boundary)

EXISTING CONDITION: The Buffer Zone Management Area provides a one-mile wide perimeter around the ISDRA boundary to be used as a buffer zone. (See Map 15.) This one-mile wide buffer is to reduce the impacts of the ISDRA on property that is outside of the ISDRA boundary, but within the ISDRA planning area. Currently BLM manages 48,312 acres within this management unit. Within this management area is approximately 9,136 acres of privately owned land and approximately 1,758 acres of military owned land, which will not be managed by BLM. Lands within this management area are currently managed as limited access or closed. The area encompasses sand and gravel mining, military bombing ranges, private lands, and management areas for the desert tortoise and the flat-tailed horned lizard. It is used for OHVs, camping, hunting, rights of way (see Appendix 2), and military exercises.

In the area south of the road to Boardmanville, a privately owned store, and east of the railroad tracks there is relatively low use. The use that does occur is limited to the existing roads and trails.

The area west of the Dune buggy flats, and within the designated Area of Critical Environmental Concern was closed to camping in 2001 as mitigation for the construction of the Herman Schneider Memorial Bridge. The area is still open for limited use and used for accessing the bridge and Pair-A-Dice, a privately owned store.

DESIRED CONDITION: This desired use of this area is to establish a buffer zone around the actively used portion of the ISDRA. This buffer zone is intended to reduce the impacts from the recreational use of the ISDRA on nearby property. Camping would not be allowed in the Buffer Zone Management Area. Motorized OHV recreation would be limited to designated roads and trails. No cross-country travel would be allowed anywhere within this area. No commercial or competitive activities related to OHV use and camping would be allowed anywhere in the management area, although existing commercial activities such as mining would continue. Informational and interpretive signing would be allowed to meet management objectives for the area.

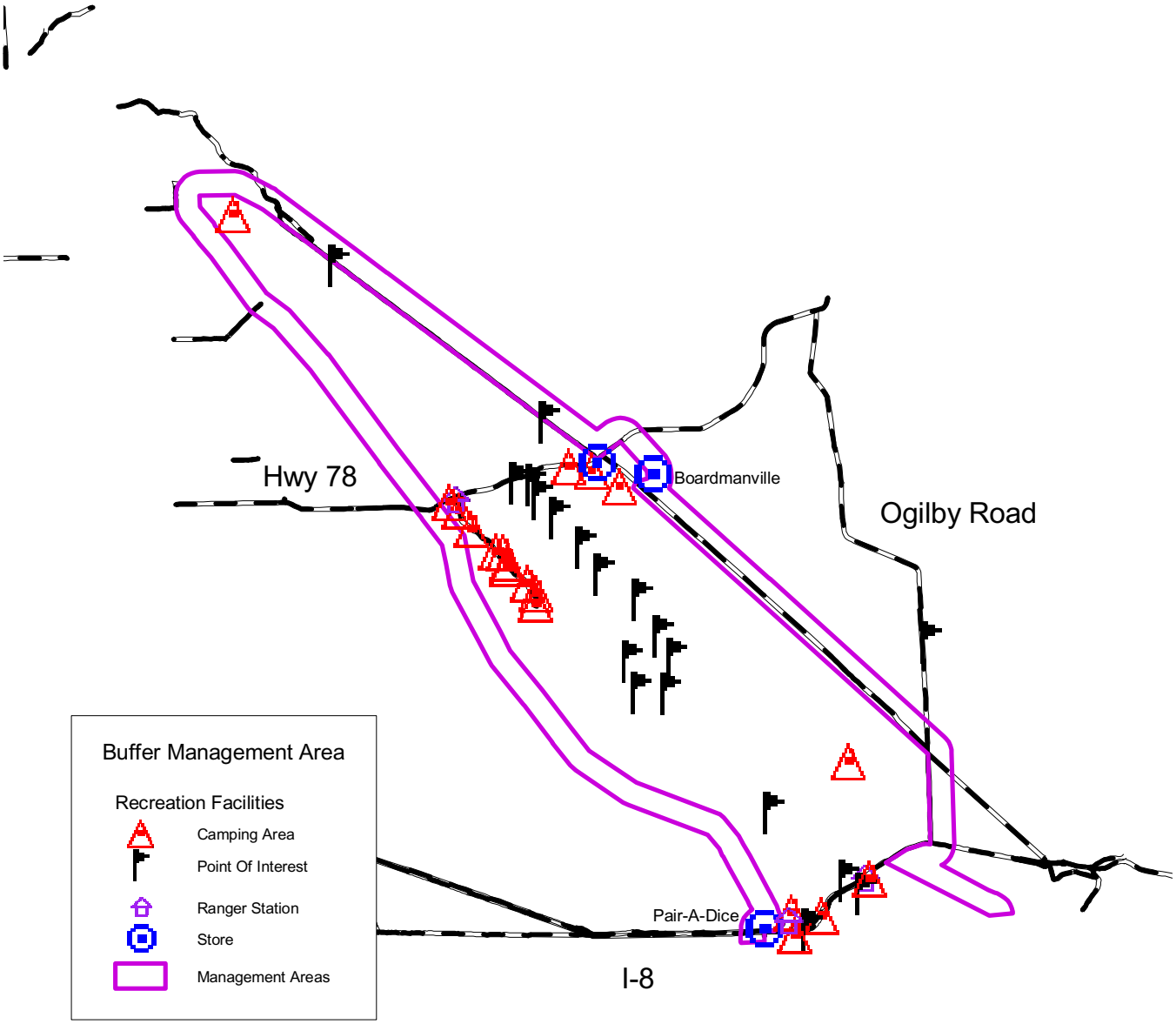
MANAGEMENT ACTIONS:

Information and Interpretation Education

- BZM # 1. Provide education about the no camping status and vehicle use of roads through informational brochures, signs and enforcement actions.

Health & Safety

- BZM # 2. Strictly enforce the no camping rule, limited use classification and routes of travel restrictions.



Map15

Buffer Management Area

5 0 5 10 15 Miles

N

Chapter 4

Implementation Schedule

This chapter presents the management actions identified in chapter 3 into a table format schedule. Each management action in chapter 3 is included in Tables 4-1 through 4-10. These tables include a funding source for the management action, a schedule for the management action and an estimated cost for the management action.

Table 4-1
ISDRA Wide Management Actions

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
AW # 1	Resource Condition Survey	when triggered	federal, fees	included in AW #11	included in AW #11
	Social Survey	when triggered	federal, fees, grant	$53,560	
	Information/Education to promote off peak season recreating	when triggered	federal, fees, grant	$8,450	$8,450
	Expand reservation system to 50% of the designated camp sites	when triggered	federal, grants, fees	$161,200	$28,210
	Administering reservation system	when triggered	fees	$82,225	$75,725
	Differential Fees, through fee collection contract	when triggered	fees	$0 , incl in cost of contract	
	Enhance information / education			$8,450	$8,450
	Limit the number of users in the ISDRA.	when triggered	grant, fees	$2,368,600	$118,300
AW # 2	Update fee business plan	2004	federal, fees	$45,500	
AW # 3	Visitor survey on safety, natural and cultural resource concerns and management of the ISDRA	2005	federal, fees, grant	$53,560	
AW #4, #5,& #6	Camping area development / construction in Rural Management Areas.	when triggered by closures	fees, grant	$33,280 per acre	
AW # 7	Implement visitor and OHV survey	2003	federal, fees	included in AW # 11	included in AW # 11
AW # 8	Replace and retrofit facilities for ADA.	2005	fees, grant, federal,	$525,200	
AW # 9	Trash collection stations	2005	fees, grant	$1,171,300	$58,500
AW # 10	Maintenance workers for the care of the ISDRA facilities and necessary equipment	2005	federal, fees	$2,311,400	$520,000
AW # 11	Implement the biological monitoring plan for plant species	2003	federal, fees, grants	$824,200	$386,100
AW # 12	Implement the monitoring plan for lizard species	2004 or later	federal, fees	included in AW # 11	included in AW # 11
AW # 13	Implement the monitoring plan for microphyll woodland vegetation	2003	federal, fees	included in AW #11	included in AW #11
AW # 14	Work with others for education	2003	federal, fees	$26,000	$26,000
AW # 15	"Quick Facts" brochures	2004	federal, fees	$8,840	$8,840
AW # 16	Outreach	2003	federal, fees	$26,000	$26,000
AW # 17	Utilize the Internet for both national and international outreach.	2003	federal	$1,300	$1,300
AW # 18	ISDRA Jr. Ranger Program	2003	fees, federal	$5,850	$5,850
AW # 19	Establish volunteer host program	2004	fees, grant	$26,000	$26,000
AW # 20	All significant commercial activities will be monitored by the BLM.	2003	federal, fees	$14,430	$14,430
AW # 21	The price structure for vending in the ISDRA will be independently reviewed every two years.	2003	federal, fees	$14,300	$7,150
AW # 22	Write supplementary rule RE: vendor's time on site will be considered part of his/her 14-day limit on camping.	2003	N/A	N/A	
AW # 23	A supplementary rule RE: vendor citations	2003	N/A	N/A	
AW # 24	Develop and Maintain 5 year budget	2003	federal, fees	$6,500	$6,500
AW # 25	Radio communication maintenance	2004	federal, fees	$81,900	
AW # 26	Dispatching at Cahuilla Ranger Station by Park Rangers	2003	grant, fees	$26,000	$26,000

Table 4-1
ISDRA Wide Management Actions

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
AW # 27	Volunteer Support Staffing / Emergency Medical Staffing	2003	federal, grant, and fees	$1,300,000	$1,300,000
AW # 28	Law Enforcement Staffing - permanent	2005	federal, grant, and fees	$1,820,000	$1,820,000
	additional holiday	2003	federal, grant, and fees	$2,340,000	$2,340,000
AW # 29	Ban alcohol outside of the designated camping areas.	2003	federal, grant, and fees	N/A	
AW # 30	Establish a sun down to sun up closure of Competition Hill north and south, Oldsmobile Hill, Test Hill, and Patton Valley.	2003	federal, grant, and fees	$520,650	$520,650
AW # 31	Create a law enforcement co-operative team and plan	2003	federal, grant, and fees	$16,900	$16,900
AW # 32	Use the "Law Enforcement" subcommittee formed from the ISDRA TRT to assess the current and potential issues and concerns expressed by the OHV community.	2003		N/A	
AW # 33	Explore the feasibility of contracting with the National Park Service to provide additional seasonal law enforcement (subject to seasonal furlough).	2003	federal, grant, and fees	N/A	N/A
AW # 34	Dust control treatment	2003	grant, fees	$670,800	$670,800
AW # 35	Install air meters	2003	grant, federal	$97,500	$65,000
AW # 36	Continue with and refine the Incident command system	2003	federal, grant, and fees	N/A	
AW # 37	Enforce speed limits	2003	grant, fees	$650	$500
AW# 38	Nominate significant resources to the National Register of Historic Places, as appropriate	based on surveys	grant, fees	$50,000	

Table 4-2
ISDRA Management Actions for the
Mammoth Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
MM # 1	Wildlife Guzzler Maintenance	2003	federal	$3,900	$3,900

Table 4-3
ISDRA Management Actions for the
North Algodones Dunes Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
NA # 1	Ranger Patrols	2003	federal	N/A	N/A
NA # 2	Interagency Coordination	2003	federal	$6,500	$6,500
NA # 3	Wildlife Guzzler Maintenance	2003	federal	$6,500	$6,500
NA # 4	Boundary Signing	2003	federal	$32,500	$32,500
NA # 5	Maintain the watchable wildlife site on the eastern boundary as a nature interpretive area.	2003	federal, grant	$325	$325
NA # 6	No commercial activities will be permitted within the wilderness	2003		N/A	
NA # 7	The kiosk at the watchable wildlife site will include information on desert safety for hikers or equestrian visitors who venture into the wilderness	2003	federal	$910	$910

Table 4-4
ISDRA Management Actions for the
Gecko Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
GM # 1	Eliminate camping between the canals and north of highway 78.	2003	federal, grant, fees	N/A	N/A
GM # 2	Increase the amount of camping pad space on Gecko Road.	2003	grant, fees	$499,200	$19,500
GM # 3	Utilize camping area between the canals as an overflow area when supply limits are enforced on Gecko Road.	when triggered by AW # 1	grant, fees	N/A	
GM # 4	Continue the use of volunteer and nonprofit clean-up efforts.	2003	grant, fees	$6,500	$6,500
GM # 5	Develop a pilot reservation program in Roadrunner Campground	2005	grant, fees	$82,225	$75,725
GM # 6	Traffic control at the intersection of Gecko Road and Highway 78 during peak traffic hours.	2003	federal, grant, fees	N/A	N/A
GM # 7	Construct fee entry / traffic control area on Gecko Road.	when triggered by AW # 1	federal, grant, fees	see AW # 1	
GM # 8	Close Osborne Overlook to camping.	2007	federal, grant, fees	N/A	N/A
GM # 9	Construct a ranger station at Osborne Overlook.	2007	federal, grant, fees	$2,655,900	$132,600
GM # 10	Construct an interagency Law Enforcement facility at Osborne Overlook	2007	federal, grant, fees	$692,900	$35,100
GM # 11	Construct maintenance shed current ranger station.	2008	federal, grant, fees	$633,100	$31,200
GM # 12	Construct a fuel station at the current ranger station for BLM use.	2008	federal, grant, fees	$26,000	$1,300
GM # 13	Replace the current EMT and L.E. trailers with permanent housing.	2008	federal, grant, fees	$900,900	$32,500
GM # 14	Remove the current ranger station trailer.	2008	federal, grant, fees	$65,000	
GM # 15	Construct additional housing and parking facilities for the ISDRA staff at the site of the current ranger station.	2008	federal, grant, fees	$1,020,500	$51,025
GM # 16	Install outdoor information and interpretation kiosks and panels at Osborne Overlook.	2008	federal, grant, fees	$3250 per panel / $9100 per kiosk	$325 per panel / $910 per kiosk
GM # 17	Install an interpretive area in the station at Osborn Overlook.	2008	federal, grant, fees	$260 per square foot	
GM # 18	Install information and interpretive kiosks at Gecko Road, Gecko Campground, and Roadrunner Campground.	2005	federal, grant, fees	$9100 per kiosk	$910 per kiosk
GM # 19	EMS rescue buggy	2003	fees	$57,980	$5,798
GM # 20	Increase contracted EMS services	2003	Imperial County, grant, fees	$46,800	$46,800

Table 4-5
ISDRA Management Actions for the
Glamis Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
GLM # 1	Construct Pit Toilets	2004	grant, fees	$16,900	
	annual cleaning	2004	grant, fees	$1,430	$1,430
	annual pumping	2004	grant, fees	$1,100 per toilet	$1,430
GLM # 2	Camping East of Glamis - signing	2003	federal, fees	$2,600	$300
GLM # 3	Regular Grading of the Wash Road	2003	Fee Revenue	$689	$689 per mile

Table 4-6
ISDRA Management Actions for the
Adaptive Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
AM#1	Implement and enforce permit program	2003	Fees	$96,200	$81,900
AM #2	Implement Education Program & Permit Exam	2003	Fees	$2,600	$2,600

Table 4-7
ISDRA Management Actions for the
Ogilby Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
none anticipated					

Table 4-8
ISDRA Management Actions for the
Dune Buggy Flats Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
DM # 1	Construct pit toilets	2005	grant, fees	$16900 per toilet	
	annual pumping	2004	grant, fees	$1,430 per toilet	$1,430 per toilet
	annual cleaning	2004	grant, fees	$1,430 per toilet	$1,430 per toilet
DM # 2	Grade entrance road	2004	Rec Fees	$689 per mile	$689 per mile

Table 4-9
ISDRA Management Actions for the
Buttercup Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
BM # 1	Designate campsites if deemed feasible by the pilot program	If triggered by AW # 1 or GM # 5	fees	$52,000	$7,800
BM # 2	Construct a semi-permanent ranger station in Buttercup	2005	federal, grant, fees	$500,000	$25,000
BM # 3	Construct a separate semi-permanent interagency Law Enforcement	2005	federal, grant, fees	$500,000	$25,000
BM # 4	Designate an interpretive area adjacent to Greys Well Road	2006	federal, fees	$260,000	$13,000
BM # 5	Repair the fencing around the plank road	2003	federal, fees	$130,000	$19,500
BM # 6	Repair and update all plank road exhibits	2003	federal, fees	$65,000	$9,750
BM # 7	Work cooperatively with the Border Patrol on a brochure that interprets the dangers of the border area and illegal border crossings on OHVs	2003	federal, fees	$32,500	$3,900
BM # 8	Designate a bus parking area on Greys Well Road.	2006	federal, fees	$6,500	$325
BM # 9	Designate a vendor area and sites	2003	federal, fees	$130,000	$6,500

Table 4-10
ISDRA Management Actions for the
Buffer Management Area

Action / Priority Number	Planned Action(s)	Implementation Year	Proposed Funding Source	First Year Estimated Costs	Yearly Estimated Costs
BZM # 1	Implement no camping & route designation.	2003	federal, fees	$29,900	$7,800
BZM # 2	Strictly enforce the no camping rule, limited use classification and routes of travel restrictions.	2003	federal, fees	N/A	
	Note: All estimated costs are in 2002 year dollars.				

Appendix 1

Introduction

This appendix provides the methodology to monitor species of concern in the ISDRA. Through monitoring and analysis of the monitoring data, BLM will determine the impacts to species of concern due to recreational use of the ISDRA. Management of recreational use, especially in the adaptive area, will be evaluated periodically in light of the results of this monitoring, and revised as needed to achieve a balance of providing a high level recreational area and conserving species of concern.

Monitoring Plan

SPECIAL STATUS PLANTS

Yearly Monitoring: It is planned to annually estimate the density (number of plants/unit area) and population size of the following three special status plants:

- Peirson's milk-vetch - *Astragalus magdalenae* var . *peirsonii* (ASMAP)
- Algodones Dunes sunflower - *Helianthus niveus* ssp. *tephrodes* (HENIT)
- Sand food - *Pholisma sonorae* (PHSO)

Estimates will be made separately for the following areas of the ISDRA:

- Mammoth Wash area
- North Algodones Wilderness
- Open Area south of Highway 78 and north of Adaptive Management Area
- Adaptive Management Area
- Open Area south of Adaptive Management Area

These estimates can also be combined into a single estimate for the entire ISDRA using the appropriate formula for stratified random sampling.

Sampling Objectives: Although all 3 plant species will be sampled, the following sampling objectives are based on ASMAP. It is anticipated that similar precisions will also be obtained for the other 2 species. (1) For yearly estimates: sampling will be designed to achieve yearly estimates that are within 30% of the true total population size at the 95% confidence level within each of the sampling areas. (2) For change detection: sampling will be designed to detect a change in population size between any two years of 50%, with false-change (Type I) and missed-change (Type II) error rates of 0.10 and 0.90, respectively. These sampling objectives may be modified based on pilot sampling.

The highly clumped nature of these 3 species makes the use of belt transects (long, narrow quadrats) mandatory in order to achieve reasonably precise estimates (Elzinga et

al. 1998 and 2001), but the most efficient belt width is yet to be determined. Pilot sampling was conducted on ASMAP and HENIT in 2001 using belt transects run due west-east across the dunes. The belts ranged from 5.8m to 15.9m long depending on the extent of the dunes crossed by each transect. The number of plants of each species was recorded in 1m wide belts on each side of each of the transects, so that separate coefficients of variation could be calculated for both 1m and 2m wide belts. The 2m wide belt yielded a more precise estimate of population size for both species than the 1m wide belt. Wider belts (at least 5m wide and possibly 10m or 15m wide) will yield more precise estimates. The first year of data collection will record plant numbers in belts of these 3 widths (and possibly other widths) to determine which of these widths yields the highest precision within logistical constraints.

Belt transects will be positioned using a restricted random design within each of the 5 dune areas. The railroad tracks on the east side of the dunes will be used as a baseline and transects will be run perpendicular to this baseline (the railroad tracks, because they are straight, will be used to determine the position of each of the transects; however, the transects will actually be walked beginning on the west side of the dunes and will end once they'd crossed the known habitat of the 3 species). Once the number of transects to be employed for each area is determined, the section of baseline applicable to each of the areas will be equally split into the same number of segments as transects. The starting point for each transect will then be randomly determined within each of the segments. Bias resulting from edge effect will be controlled by the following rule: Plants with rooting parts touching the north (left) side of the boundary of each belt transect will be counted in, while those touching the south (right) side of the line will be counted out.

Less Frequent Monitoring (5 to 10 year rotation): In 1998 BLM initiated a monitoring study of 6 rare plants in the dunes. That monitoring, which took place in spring and summer 1998, spring 1999, spring 2000, and spring 2001, was designed to allow comparison of plant abundances between 1998 and subsequent years and to an earlier 1977 study of the dune plants. The results of that monitoring are summarized in Willoughby (2000 and 2001) and involved the reading of 34 randomly selected transects of contiguous cells 0.45 miles on a side. Observers placed each of the 6 rare species into one of five abundance classes, from 0 for not present to 4 for abundant. This method results in an index of abundance for each of the plant species. That monitoring has shown that two other special status plant species, giant Spanish-needle (*Palafoxia arida* var. *gigantea*) and Wiggins' croton (*Croton wigginsii*), are very common throughout the dunes and even dominant in areas. Because of this, they are not as vulnerable to threats as the other special status species and concern would be generated by large changes in their abundance occurred. These changes can be easily detected using the abundance index method employed in 1998, 1999, 2000, and 2001, and annual monitoring of these species seems unwarranted. Such changes will likely not take place until a period of several years had passed. Thus, it seems prudent to monitor these species on an approximate 5-year rotation using the 1998-2001 methodology. The word "approximate" is used here because the monitoring will be keyed to rainfall. This monitoring will only be performed in a spring following a growing season with average or above average rainfall. For example, the next monitoring of this type will be conducted in spring 2006

(5 years following the 2001 monitoring) unless the rainfall in the growing season preceding spring 2006 is lower than average, in which case the monitoring will not take place until the next year in which this condition is met.

A sixth species, Borrego milk-vetch (*Astragalus lentiginosus* var. *borreganus*), was also monitored in 1998, 1999, 2000, and 2001. This species, however, only occurs in the southeastern portion of the dunes on more stable dunes than the other species, and is rather widespread on sandy flats and stabilized dunes in the Colorado Desert of California, Arizona, and Mexico, and the Mojave Desert in California (Barneby 1964). For these reasons, the only formal monitoring of this species will be in conjunction with the monitoring described above for giant Spanish-needle and Wiggins' croton.

Analysis of Yearly monitoring: While it is tempting to compare plant densities between the 5 areas in order to assess OHV effects, this comparison will be misleading. The dunes differ in topography and rainfall amounts from north to south. Consequently, it is reasonable to assume that plant densities between the areas will differ naturally, in the absence of any OHV use. Of more interest is whether the responses between areas (particularly between the wilderness area and the Adaptive Management Area) are *parallel* with one another (i.e., a decline in the population size in the Adaptive Management Area is mirrored by a similar decline in the wilderness area or an increase in the Adaptive Management Area is accompanied by a similar increase in the wilderness area). If the responses are not parallel, one will then look for a reason. The reason could be OHV use in the Adaptive Management Area, different amounts of growing season precipitation in the two areas, or a combination of both. Weather station data (see discussion of weather stations below) will be examined to determine if the lack of parallel response is due to rainfall. OHV use data (see below) will also be examined to determine if an increase or decrease in OHV use levels is responsible for the difference.

In the short term (<10 years) the only analysis to determine if density responses are parallel is a multivariate repeated measures analysis of variance, also called profile analysis (Tabachnick and Fidell. 2001; von Ende 1993). Such an analysis requires treating the belt transects as permanent sampling units that are repeatedly measured every year. Treating the belts as permanent is problematic in this case, since they are narrow and very long, making it very difficult to ensure that the same belts are actually being read in different years. The use of an accurate global positioning system may enable the belts to be treated as permanent if many points along the transect line are entered into the global positioning system as waypoints. The feasibility of this approach will be tested during pilot sampling. If feasible, the density information will be analyzed using the multivariate repeated measures analysis of variance and the information used to determine if the responses between the wilderness area and Adaptive Management Area are parallel, as described above. If not feasible, independent samples will be collected in each year (i.e., random starting points for the transects will be selected separately in each year) and each of the 5 areas will be analyzed separately to determine the trend in densities over time.

In the long term (after 10 years of data have been collected), the parallel response hypothesis, even for independent samples, can be tested through regression analysis, treating density as the dependent variable and year as the independent variable. If the slopes of the regression lines for the wilderness area and Adaptive Management Area are not significantly different, then a parallel response can be inferred.

Analysis of Less frequent monitoring: Trends in special status plant species abundances will be determined for the entire dunes. These trends will be portrayed graphically using either bar or point graphs, with error bars, with year on the x axis and abundance class on the y axis.

PSAMMOPHYTIC VEGETATION

Both the cover and density of perennial plants will be estimated annually by means of line intercept transects run perpendicular to each of the belt transects described above at systematic intervals along each belt. A line intercept transect length of 50m will be used during pilot sampling; this length is subject to change depending on how well a transect of this length intercepts the variety of perennial plants present at each sampling location. These transects will be positioned systematically with a random start at 1km points along each of the belt transects. Along each transect, the distance intercepted by the line will be recorded by species. This will result in an estimate of cover for each species as well as an estimate for total vegetation cover. Additionally, the width of each species intercepted will be measured by means of a meter stick or other measuring device placed perpendicular to the line intercept transect at the plant's widest point. These widths will be used to estimate the cover of each perennial plant, using methods described in Lucas and Seber (1977).

Sampling Objectives: The following sampling objectives will be keyed to estimating total vegetation cover. (1) For yearly estimates: sampling will be designed to achieve yearly estimates of cover that are within 50% (relative) of the true vegetation cover at the 95% confidence level within each of the 5 sampling areas. (2) For change detection: sampling will be designed to detect a change in total vegetation cover between any two years of 50%, with false-change (Type I) and missed-change (Type II) error rates of 0.10 and 0.90, respectively. These sampling objectives may be modified based on pilot sampling.

Analysis: Changes in total vegetation cover and the cover of at least the most dominant species will be analyzed in a manner analogous to that described for special status species, above.

DESERT MICROPHYLL WOODLAND VEGETATION

Monitoring of Desert Microphyll Woodland vegetation will be conducted annually, but monitoring of specific areas will be done on a five-year rotation using the protocol currently being developed by BLM to monitor riparian and wetland vegetation desert-wide. It is expected that this protocol will be finalized in time for monitoring in spring

2003. It will likely make use of existing above ground biomass equations and aerial photographs to detect change. Existing permanent woodland plots monitored by the California Department of Forestry and Fire Protection and the U.S. Forest Service will also be used to help design the study and to help in interpretation.

COLORADO DESERT FRINGED-TOED LIZARD

In 2001, 50 survey transects were completed for spring and fall in order to estimate the density of Colorado Desert fringe toed lizards (*Uma notata*) in a comparison of open and closed areas in terms of OHV use. The Algodones Dunes Wilderness Area was used as a control, while the open area to the south was used as a treatment. Using the grid established by the WESTEC Study of 1977 (WESTEC 1977), 0.45 mile square cells on the grid were selected using simple random sampling after the elimination of habitat not entirely consistent with *Uma notata*, i.e., microphyll woodland, creosote bush scrub, and any cells within 0.45 miles of a road (Gecko Road and State Highway 78).

The first 60 Cells were then numbered (south to north in closed area, north to south in open area) in a snaking pattern before simple random sampling was applied. Transects were 0.45 mile long and 10m wide belts. Surveyors were evenly spaced, and navigated the transects using Garmin III global positioning system units on NAD 83 Map Datum from west to east using the northwest to northeast grid lines. Transects were alternated from open to closed areas in order to avoid weather bias, and were also completed when surface temperatures were at or between 35-44 degrees Celsius. Transects were not completed if (1) OHV activity was observed on the transect or (2) high wind speeds and lifting sand obstructed surveyors' ability to detect the lizard.

Two surveyors tapped the ground with 2.5m bamboo sticks in front of them while surveying in order to flush lizards. Microhabitat data was collected in addition to lizard numbers; this data included type of cover used, type of escape cover used, surface temperature, physical habitat (bowl, slip-face, dune ridge, sandy flat), habitat (active dune, psammophytic scrub), aspect, age (adult, sub-adult, hatchling), substrate the lizard was on, slope (degrees), and species. Approximately 99% of lizards observed were *Uma notata*. Results from these surveys are currently being analyzed.

A similar monitoring protocol will be implemented following plan completion. In addition to applying this protocol to the wilderness area and the open area immediately south of Highway 78, monitoring transects will also be established in the Adaptive Management Area and in the open area south of the Adaptive Management Area. Fewer transects per area will be read than the number read in 2001, since preliminary analysis of the 2001 data indicate that sufficient precision can be obtained with a lower number of transects. For those areas sampled in 2001, a subset of the transects run in 2001 will be selected according to a random design (i.e., either simple random sampling, systematic random sampling, or restricted random sampling) for future measurement. For those areas not yet sampled, the WESTEC grid will again be used as described above, with transects positioned using a random design.

Sampling Objectives: Sampling objectives for the Colorado Desert fringe-toed lizard are as follows. (1) For yearly estimates: sampling will be designed to achieve yearly estimates of lizard density that are within 30% of the true lizard density at the 95% confidence level within each of the 4 sampling areas. (2) For change detection: sampling will be designed to detect a change in lizard density between any two years of 50%, with false-change (Type I) and missed-change (Type II) error rates of 0.10 and 0.90, respectively. These sampling objectives may be modified based on pilot sampling.

Analysis: Lizard densities in each of the five sampled areas will be compared over time to determine if there is a trend in density over time. The densities for each of the four areas may also be compared to determine if there are significant differences in density between areas, but this difference will be difficult to interpret given the variability in topography and probably climate throughout the entire dune system. It may be possible to use a multivariate repeated measures analysis of variance, as described under the analysis section for special status plants, to see if the responses of the lizards in each of the areas are parallel over time. The power of this analysis, however, depends upon the degree of correlation between years of each of the sampling units (belt transects). It is quite possible that this correlation will prove to be low with an organism this mobile, but pilot sampling should provide an answer.

Once more than 10 years of data are available, the parallel response hypothesis, even for independent samples, can be tested through regression analysis, treating density as the dependent variable and year as the independent variable.

FLAT-TAILED HORNED LIZARD

There have been approximately 20 sightings of the flat-tailed horned lizard (FTHL) in the Algodones Dunes, some well out in the dune interior. Foreman (1997) summarized existing information on FTHL habitat, concluding, “Flat-tailed horned lizards are probably rare in the unvegetated portions of major dune systems, such as the Algodones Dunes and the dunes of the Gran Desierto. (Luckenbach and Bury 1983, McCalvin 1993). However, much of the ISDRA is vegetated. Large areas of psammophytic scrub occur in the ISDRA. The only known surveys directed specifically toward the FTHL were conducted by BLM. These surveys looked at portions of the dunes near their perimeter (i.e., near roads) and consisted of 2.5 mile long belt transects that were 50 inches wide (Wright 2002). During the 77 hours spent walking these transects, two lizards were sighted (a rate of 0.026 lizards/hour). This sighting rate of 0.026 lizards/hour is much lower than sighting rates for other areas in California. West Mesa, for example, an area known to provide good habitat for the species, has a sighting rate of about 0.2 lizards/hour, while the California range as a whole is about 0.1 lizards/hour. These data appear to indicate that the FTHL is less abundant in the dunes, but the fact remains that the majority of the dunes have not been surveyed for the species.

The monitoring planned here is to search for FTHL on a randomly selected subset of the belt transects used for the Colorado Desert fringe-toed lizard. The FTHL will not be surveyed during the same time as the fringe-toed lizard transects because the FTHL will

require considerably more time to read and because the FTHL must be surveyed following a wind event that erases previous lizard tracks (see below), a constraint not shared by the fringe-toed lizard monitoring.

Belt transects 724m (0.45 mile) long by 10m wide will be surveyed by teams of 2-3 observers. Observers will carefully walk the transects looking for either lizards or lizard tracks. If tracks are found, they will be followed in an attempt to find the lizard. If found the lizard will be counted as being in the belt transect. The parameter estimate will be the number of lizards detected per hour of survey. A separate estimate of this parameter will be obtained for each of the areas surveyed (Mammoth Wash, wilderness area, open area north of the Adaptive Management Area, Adaptive Management Area, open area south of the Adaptive Management Area).

Sampling Objectives: No sampling objectives are planned at this time. Studies in non-dune habitat (Wright 2002) have shown that detection rates of this cryptic animal can be very low and variable, leading to rather imprecise estimates of detection rate. The dune substrate allows observers to use tracks to locate lizards (something they were unable to do on other substrates), and this may result in lower coefficients of variation and more precise estimates of detection rate. On the other hand, the possible lower abundance of the lizard in the dunes may result in many zero values, leading to less precise estimates. Because of these unknowns, there is no reasonable means of estimating the potential coefficient of variation for FTHL data. Therefore, no sampling objectives will be set until pilot sampling yields an estimate of detection rate and its standard deviation.

Analysis: Analysis of FTHL detection rates will be conducted in a manner similar to that discussed above for Colorado Desert fringe-toed lizard density. Because FTHL estimates may not be very precise it may not be possible to detect other than drastic changes in FTHL abundance, but the monitoring will at least answer questions concerning whether psammophytic scrub supports many FTHL and, if so, what the FTHL distribution in the dunes is.

OHV USE

OHV use will be estimated by means of aerial photography, taken yearly. Sixteen air photo transects were established throughout the dunes in 1998. These transects were flown on Easter weekend 1998 and reflown on Easter weekends in 1999, 2000, and 2001. These transects will be continued, with the modification discussed below. The aerial photographs obtained from these transects are at a 1:7000 scale, allowing the detection of vehicle tracks. Existing and future aerial photographs will be sampled by means of a grid of points to estimate the cover of vehicle tracks in the dunes. The size of the grid and number of points per transect will be determined based on pilot sampling to meet the sampling objectives described below. Aerial photographs will be registered so that sampling grids can be placed in the same area in each year. Additional transects will be added to the Adaptive Management Area and Mammoth Wash so that complete aerial coverage of those two areas is achieved.

Sampling Objectives: The following sampling objectives will be keyed to estimating total vegetation cover. (1) For yearly estimates: sampling will be designed to achieve yearly estimates of OHV track cover that are within 50% (relative) of the true OHV track cover at the 95% confidence level within each of the 5 sampling areas, especially within the Adaptive Management Area and Mammoth Wash. It is unlikely this objective can be met for the wilderness area since the OHV track cover there will likely be extremely low. (2) For change detection: sampling will be designed to detect a change in OHV track cover in each area-- especially within the Adaptive Management Area and Mammoth Wash--between any two years of 50% (relative), with false-change (Type I) and missed-change (Type II) error rates of 0.10 and 0.90, respectively. It is unlikely this objective can be met in the wilderness area for the reasons given in (1), above. These sampling objectives may be modified based on pilot sampling. 1

VISITOR USE

In order to obtain better estimates of visitor use on holiday weekends, the following three-part monitoring study is planned:

- Personnel will collect the following data at major dune entry points: types of vehicles entering the dunes, number of people in vehicles, and the types of OHV vehicles they are bringing into the dunes.

- Electronic vehicle counters will be used to count vehicles coming into the dunes. Local regressions on the data collected in Part 1 will be used to extrapolate the estimated population and the type and number of vehicles.

- Conduct demographic studies to obtain data on the willingness-to-pay and actual expenditure data by OHV recreation visitors under different adaptive management regimes. These elements respond to the need to account for the economic impact of OHV recreation visitors to communities.

WEATHER STATIONS

Long-term weather stations in the region do not completely capture the actual growing season precipitation occurring in the dunes. These weather stations are some distance from the dunes, the seasonal precipitation totals vary greatly between stations, and there is strong indication that precipitation varies considerably within the dunes during the same growing season (Willoughby 2000 and 2001). For these reasons, two Remote Area Weather Stations were set up in the dunes in fall 2000, one at the Cahuilla Ranger Station

1 At first glance it may seem that an estimate within 50% of the true vehicle track cover or a change in track cover of 50% is very large and that sampling should be conducted to achieve more precise estimates or to detect smaller changes. It's important, however, to put these 50% changes in perspective. It is very likely that the true OHV track cover is very low, particularly in the Mammoth Wash and Adaptive Management Areas. If the true track cover is 1%, then the objective would be to estimate this cover within 1% x 50% = 0.5% and to detect a change of ± 0.5%. This is actually a very small value. For example, to estimate 1% cover within ± 0.5% at the 95% confidence level, requires a sample of 1,467 points.

in the northwest part of the dunes and one at Buttercup Campground in the southern part of the dunes. These stations began collecting weather data on November 16, 2000. The Buttercup Station recorded significantly higher precipitation than the Cahuilla Station between November 2000 and December 2001. Because of this variability and the importance of precipitation in controlling the abundance of special status plants, the Colorado Desert fringe-toed lizard, and the flat-tailed horned lizard, more weather stations are necessary to enable good interpretation of the monitoring data collected. If adequate funding is secured, five additional remote area weather station facilities will be installed in the dunes. These new stations will be located approximately as follows: (1) in the extreme northern part of the dunes in the vicinity of Mammoth Wash; (2) at the wildlife viewing area just northwest of Glamis; (3) along the Wash Road west of the junction of Ted Kipf and Vista Mine roads; (4) along the Wash Road west of Cactus; and (5) along the sand highway west of Tube 1.

Precipitation data gathered by the remote area weather stations will be compared to the results of monitoring to assist in determining whether a detected increase in the population of a special status species can be solely attributable to precipitation variability. This evaluation will assist in determining what, it any, management action is required in response to a detected change in population size.

Additional Funding Required to Support Monitoring

Additional funding will be required to accomplish the monitoring described above. This funding includes both one-time and yearly costs, as detailed below.

Need	One-time Cost	Yearly Cost
Personnel		$200,000
All Terrain Vehicles (4 @ $6,000 each)	24,000	
Four person sand rail	45,000	
Vehicle maintenance		5,000
Remote Area Weather Stations (5 @ $25,000 each)	125,000	
Weather Station Maintenance		5,000
Resource Grade Global Positioning System Units (4 @ $5,000 each)	20,000	
Aerial Photography		10,000
Total	214,000	220,000

Personnel: Monitoring will be accomplished using a combination of full-time employees, seasonal employees, contractors, and volunteers. In addition to actually reading transects, two employees will provide logistical and safety support during monitoring periods (e.g., waiting at the end of transects with a vehicle, monitoring radio and telephone transmissions from monitors, etc.).

Vehicles: New all terrain vehicles and a sand rail will be used to supplement existing vehicles to enable monitoring to take place simultaneously in different areas of the dunes.

Planned monitoring of plants, animals, and vegetation will involve sampling 3 to 4 times more transects than current monitoring. New monitoring of the flat-tailed horned lizard, desert microphyll woodland vegetation, and visitor use will require additional work months. Aerial photography monitoring will require additional work months to sample OHV cover on photographs.

Remote Area Weather Stations: The need for these is discussed under the section on weather stations, above.

Resource Grade Global Positioning System Units: Current monitoring is accomplished with less accurate global positioning system units. Planned monitoring will require much more accurate transect locations; thus, the need for more accurate global positioning system units.

Aerial Photography: Sixteen air photo transects are currently being flown each year. The planned monitoring calls for enough transects to allow for complete coverage of the Mammoth Wash and Adaptive Management Area.

Appendix 2

Authorized Land Uses/Status Within the Imperial Sand Dunes Recreation Area Management Planning Unit Areas

Mammoth Management Area

1. Cathodic Protection Unit Site R/W (LA 0158160)
2. BLM Windmill and Wildlife Water Tank Sites (2) R/W (CA-8714)

North Algodones Management Area

1. BLM Windmill and Wildlife Water Tank Site R/W (CA-8714)
2. State Highway 78 R/W (CA-14630)
3. Contaminated Military Area - Surface Use Only (R 05657)

Gecko Management Area

1. Contaminated Military Area - Surface Use Only (R 05657)
2. Old Coachella Canal R/W (LA 056654)
3. Withdrawal Yuma Reclamation Project - New (Realigned) Coachella Canal
4. BLM (Gecko Road) Easement (CA-2551)
5. Glamis Known Geothermal Resource Area (CA-17575)
6. Fiber Optic Line (AT&T) R/W (CA-41690)
7. Underground Telephone Line R/W (CA-19125)
8. Temporary Use Permits for Apiary Sites along Coachella Canal
9. WSA CDCA 362 - South Algodones Dunes

Glamis Management Area

1. Underground Telephone Line R/W (CA-19125)
2. Road R/W (CA-40791)
3. State Highway 78 (Realigned portion) R/W (CA-17922)
4. Fiber Optic Line (AT&T) R/W (CA-41690)

Adaptive Management Area

1. Contaminated Military Area - Surface Use Only (R 05657)
2. Cathodic Protection Unit Site R/W (LA 0158161)
3. Glamis Known Geothermal Resource Area (CA-17572)
4. WSA CDCA 362 - South Algodones Dunes

Dune Buggy Flats Management Area

1. All American Canal R/W (LA 077775)
2. Proposed Withdrawal, All American Canal Lining Project (CA-34475)
3. Old Coachella Canal R/W (LA 056654)
4. Withdrawal Yuma Reclamation Project - New (Realigned) Coachella Canal
5. Contaminated Military Area - Surface Use Only (R 05657)
6. Temporary Use Permits for Apiary Sites along Coachella Canal

Ogilby Management Area

1. Interstate 8 Highway R/W (LA 0165008)
2. State Highway (Grays Well Overpass) R/W (CA-17911)
3. Transmission Line R/W (LA 055613)
4. Transmission Line R/W (CA-5865)
5. County Road (Ogilby) R/W (CA-19171)
6. Communication Site, Access Road and Transmission Line R/W (CA-17182)
7. Railroad R/W (east boundary of management area)
8. All American Canal and Well Sites R/W (LA 077775)
9. Proposed Withdrawal, All American Canal Lining Project (CA-34475)

Buttercup Management Area

1. Utility Corridor J (2 miles wide)
2. All American Canal and Associated Telephone and Transmission Line R/W (LA 077775)
3. Transmission Line R/W (CA-5865)
4. Transmission Line R/W (CA-18904)
5. Transmission Line R/W (LA 055165)
6. Transmission Line R/W (LA 0164553)
7. Powerline Extension (to All American Canal) R/W (CA-35934)
8. Underground Telephone Line R/W (CA-26357)
9. Underground Fiber Optic Line (Level 3) R/W (CA-41192)
10. Barrier (U.S. Border Patrol) R/W Reservation (CA-34052)
11. Road (Grays Well Road) R/W Reservation to BLM (CA-19131)
12. Interstate 8 Highway R/W (LA 0165008)
13. State Highway (Grays Well Overpass) R/W (CA-17911)
14. Interstate 8 Highway and Ancillary Facilities R/W (R 07237)
15. Interstate 8 Highway and Ancillary Facilities R/W (R 01737)
16. Proposed Withdrawal, All American Canal Lining Project (CA-34475)

Buffer Management Area

1. Strip of Land Acquired by and Under Jurisdiction of BOR (CA-19902)
2. Old Coachella Canal R/W (LA 056654)
3. Underground Fiber Optic Line (AT&T) R/W (CA-41690)

4. Cathodic Protection Unit Site R/W (LA 0158162)
5. State Highway 78 (Realigned Portion) R/W (CA-17922)
6. Railroad Spur R/W (CA-29617)
7. Mineral Material Site (LA 0164722)
8. Cathodic Protection Unit Site R/W (R-374)
9. Easement to U.S. for Gordons Well Road (CA-37234)
10. Barrier (U.S. Border Patrol) R/W Reservation (CA-34052)
11. County Road (Old Hwy. 80) R/W (R 01737)
12. Underground Telephone Line R/W (CA-26357)
13. Road R/W (LA 0165008)
14. All American Canal, Telephone Line R/W (LA 077775)
15. Transmission Line R/W (LA 055165)
16. Transmission Line R/W (LA 164553)
17. County Road (Old Hwy. 80) R/W (R 01737)
18. Road, Pipeline, Wells, Transmission Line (CA-21618)
19. Mineral Material Site (LA 0133909)
20. RS 2477 County Road (Vista Mine Road and Zappone Road) R/W (CA-19169)
21. State Highway (Portion of Hwy. 78) R/W (CA-14630)
22. Underground Telephone Line R/W (CA-19125)
23. Road R/W (CA-8503)
24. Road R/W (CA-40791)
25. All American Canal R/W (LA 077775)
26. Seismographic Monitoring Site R/W (CA-2953-22)
27. Transmission Line R/W (CA-5865)
28. Underground Fiber Optic Line (Level 3) R/W (CA-41192)
29. State Highway R/W (R 137)
30. Surveillance Camera and Access Road (U.S. Border Patrol) R/W Reservation (CA-40000)
31. Telephone Line and Road R/W (CA-18904)
32. Temporary Use Permits for Apiary Sites along Coachella Canal

Appendix 3

Acronyms

AM: Adaptive Management
ASMAP: Peirson's milk-vetch
AW: Area Wide

BLM: Bureau of Land Management
BM: Buttercup Management Area
BZM: Buffer Zone Management Area

CDCA: California Desert Conservation Area
CDPA: California Desert Protection Act

DEIS: Draft Environmental Impact Statement
DM: Dune buggy Flats Management Area

EIS: Environmental Impact Statement

FTHL: Flat-tailed Horned Lizard

GLM: Glamis Management Area
GM: Gecko Management Area

HENIT: Algodones Dunes Sunflower

IC: Incident Command
ICSO: Imperial County Sheriff's Office
ISDRA: Imperial Sand Dunes Recreational Area

MA: Management Area
MM: Mammoth Management Area

NA: North Algodones Management Area

OHMVR: Off-Highway Motor Vehicle Recreation
OHV: Off-Highway Vehicle
OM: Ogilby Management Area

PHSO: Sandfood
RAMP: Recreational Area Management Plan

TRT: Technical Review Team
SUV: Sports Utility Vehicle

Appendix 4
Literature Cited

Barneby, R. C. 1964. Atlas of North American Astragalus. Memoirs of the New York Botanical Garden 13:953-954.

Baskin, C. C., and J. M. Baskin. 2001. Seeds: ecology, biogeography, and evolution of dormancy and germination. Academic Press, San Diego, CA.

Bowers, J. E. 1996. Seedling emergence on Sonoran Desert dunes. Journal of Arid Environments **33**: 63–72.

Caswell, H. 2001. Matrix population models, 2nd edition. Sinauer Associates, Inc., Sunderland, MA.

Elzinga, C. L., D. W. Salzer, and J. W. Willoughby. 1998. Measuring and monitoring plant populations. Technical Reference 1730-1, Bureau of Land Management, Denver, CO.

Elzinga, C. L., D. W. Salzer, J. W. Willoughby, and J. P. Gibbs. 2001. Monitoring plant and animal populations. Blackwell Science, Malden, MA.

Foreman, L. D., ed. 1997. Flat-tailed horned lizard rangewide management strategy. Working Group of Flat-tailed Horned Lizard Interagency Coordinating Committee. Report available at Bureau of Land Management, California Desert District Office, Riverside, CA.

Lucas, H.A., and G. A. F. Seber. 1977. Estimating cover and particle density using the line intercept method. Biometrika 64:618-622.

Luckenbach, R. A., and R. B. Bury. 1983. Effects of off-road vehicles on the biota of the Algodones Dunes, Imperial County, California. J. Applied Ecology 20:265-286.

McCalvin, C. 1993. Surveys for seven rare plant species, the flat-tailed horned lizard, and the Colorado Desert fringe-toed lizard. Report to Bureau of Reclamation, Boulder City, NV.

Pavlik, B. M. 1979. The biology of endemic psammophytes, Eureka Valley, California, and its relation to off-road vehicle impact.

Pavlik, B. M. 1994. Demographic monitoring and the recovery of endangered plants. In: Bowles, M. L., and C. J. Whelan. Restoration of Endangered Species: Conceptual Issues, Planning and Implementation. Cambridge University Press, New York.

Pavlik, B. M., and M. G. Barbour. 1985. Demography of endemic psammophytes, Eureka Valley, California. I. Seed production, dispersal and herbivory.

Pavlik, B. M., and M. G. Barbour. 1986. Demography of endemic psammophytes, Eureka Valley, California. II. Survivorship, seed bank dynamics and frequency of establishment.

Pavlik, B. M., and M. G. Barbour. 1988. Demographic monitoring of endemic sand dune plants, Eureka Valley, California. Biological Conservation 46:217-242.

Tabachnick, B.G., and L.S. Fidell. 2001. Using multivariate statistics, 4th edition. Allyn and Bacon, Boston, MA.

von Ende, C.N. 1993. Repeated-measures analysis: growth and other time-dependent measures. Pp. 113-137 in: S.M. Scheiner and J. Gurevitch, eds. Design and Analysis of Ecological Experiments. Chapman & Hall, New York and London.

Willoughby, J. W. 2000. Monitoring of special status plants in the Algodones Dunes, Imperial County, California: Results of 1998 monitoring and comparison with the data from WESTEC's 1977 monitoring study. Bureau of Land Management, California State Office, Sacramento, CA.

Willoughby, J. W. 2001. Monitoring of special status plants in the Algodones Dunes, Imperial County, California: 1977, 1998, 1999, and 2000. Bureau of Land Management, California State Office, Sacramento, CA.

Wright, G. 2002. Draft flat-tailed horned lizard monitoring report. Bureau of Land Management, El Centro, CA.